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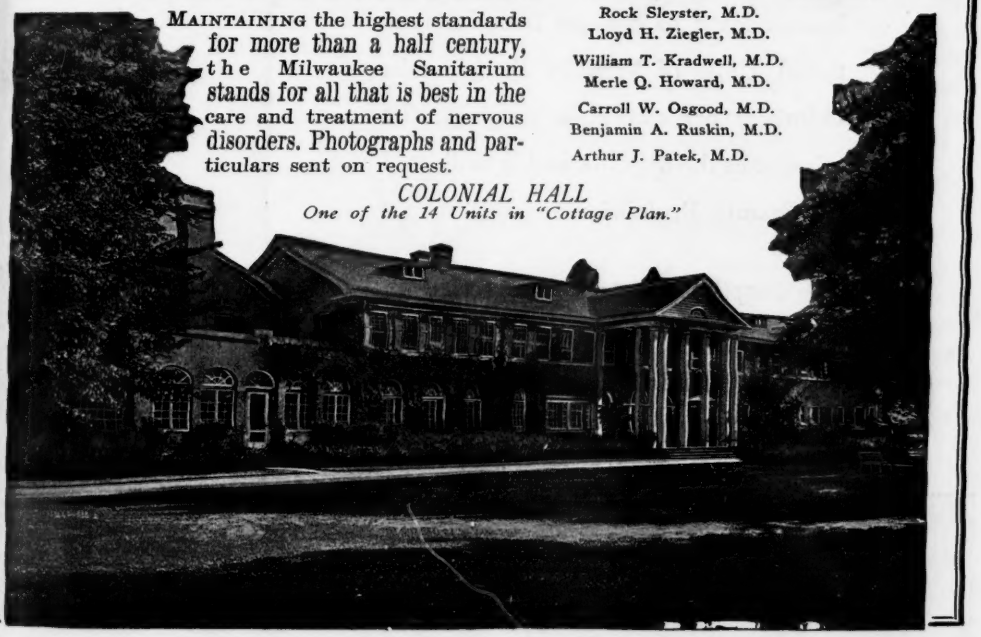

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

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Editorials

WE GET THEM FROM EUROPE INCLUDING STATE MEDICINE

NATION'S BUSINESS, January, under the title "Imported whiskers and 'isms" appropriately says:

IT'S TIME the school textbooks were revised to inform the student about imports, intangible as well as tangible. From Europe we get whiskey and socialism, olives and communism, woolens and free love, wine and militarism, chemicals and state medicine, *et cetera.* In all these the balance of trade is heavily against the United States.

Latest import from Europe, although distribution is so far limited largely to New York, is a rich crop of whiskers. All kinds of beards are represented — scientific, military, political, plain and fancy. Even the local boys in Gotham are aping the lionized refugee in hirsute foliage. Columnist Lucius Beebe says that American faces and the English language have almost disappeared from the boulevards of Manhattan.

Success formula for young men from the hinterlands who want to make a big splash in New York — or Washington: Grow a foreign-trimmed beard, cultivate a dialect and don't let on you were born in the United States.

EUTHANASIA

From the days of the noble Augustus Caesar, who, according to his historian, Suetonius, was wont to breathe the wish for an "euthanasia," a swift and painless death, the subject has preoccupied the minds of men, cropping up perennially as a controversial topic in philosophy, literature and religion. It was not until the last decade, however, that the idea attained sufficient prominence to be of concern to legislators, both abroad and in the United States.

On the question of euthanasia, the middle ground is not possible to a thinking person, for there is a fundamental cleavage in the phil-

osophy of the supporters and opposers of "mercy-killing."

The proponents of euthanasia belong willy-nilly to the Nietzschean school of thought, among those who proclaim the right of the individual to take human life, his own or that of his neighbor, in order to insure the survival of the fit. In the words of Nietzsche's mouthpiece in *Also Sprach Zarathustra,* "My death, praise I unto you, the voluntary death, which cometh unto me because I want it."

Those who oppose euthanasia do so primarily because they follow the teaching, promulgated through the centuries by Christian ethics, that human life *is* sacred, that it is God-given, and therefore that no mere human, be he the sufferer or another, has the right to end human existence.

The trend of Continental public opinion is revealed in the last novel, *Flucht in die Finsternis* (Flight into Darkness), of the Austrian physician-author, Schnitzler. He views euthanasia as quite justifiable and through the mouthpiece of the doctor's brother would have us believe that physicians with the humanitarian instincts of Otto's type practice euthanasia more widely than is generally conceded.

It is in England that euthanasia has most occupied the thoughts of legislators in the past decade. Before discussing proposed legislation, it might be well to state, however, that those who favor euthanasia may be divided into three groups: first, those who favor legislation providing that euthanasia be administered only upon the request of a sufferer for whom there is no cure known to medical science; second, those who would apply it only to persons in early life (monstrosities or mental defectives) who are doomed to useless lives until death removes them; third, the extremists who would apply euthanasia to the congenitally defective, to the paralytic, the helplessly crippled, the incurably insane, the criminal, the hopelessly psychotic — all those who are a burden to themselves and to the community.

Under the leadership of one of England's leading surgeons, the late Lord Moynihan, it was the first group which was most influential in that country in the past decade. In 1931 Dr. Millard, president of the British Medical Society, addressed the group entirely upon that question. Euthanasia attained public prominence in 1935 when the November 7th issue of the *London Daily Mail* carried an account of a physician's confession of five "Mercy deaths." His victims, according to the newspaper account, were a newborn baby, "doomed to imbecility," and four adults suffering from incurable diseases. The ensuing publicity resulted in the creation of the Voluntary Euthanasia Legalization Society.

Thanks to the efforts of the Society, a bill was drafted and introduced into the House of Lords on Nov. 4, 1936. After a day's debate the bill was "postponed" by a 35-14 vote and hasn't been revived since. At the time the advocates of euthanasia emphasized their wish to legalize it on terms which would guard against error, accident, haste, misunderstanding or its administration so long as the faintest hope of recovery remained.

According to the Euthanasia Legalization Plan of the British, a person declared hopelessly incurable in suffering can make all worldly arrangements and declare a desire for a merciful departure. When all relations and two physicians decide and sign the document, it is presented to a medical referee, who must visit the invalid and each relative and friend to ascertain that there is no individual interest and that everything is properly arranged. The patient must be twenty-one years of age before being permitted to make application. The medical certificates must be signed by the practitioner in attendance and another named by the Minister of Health. In such cases no inquest would be necessary. Then twelve judges, presumably physicians, must reach an unanimous opinion of its justification. It has been pointed out that only the wealthy could afford such a procedure, and the patient might easily die a natural death before the twelve physicians could agree.

In January, 1938, the National Society for Legalization of Euthanasia was organized in New York with the hope of preventing the tragedy of suicide after the administration of euthanasia in holpeless illness. Cooperation with the British Society was essential to its program; so its advisory board included prominent English-men as well as Americans. The founder and president is the Rev. Charles F. Potter, while the board numbers among its members

Dr. Foster Kennedy, neurologist; Dr. Clarence Little of the American Society for the Control of Cancer; Oscar Riddle, Carnegie geneticist, H. G. Wells, Julian Huxley and Havelock Ellis.

Last year a bill was in preparation for introduction in the New York State Legislature authorizing the administration of euthanasia to incurable sufferers on their own request. It provides for a commission of three persons, two physicians, to report to the Court at the request of the sufferer. Euthanasia is to be administered by any person chosen by the patient, but no person is to be obliged to do it against his will. Here, according to its endorsers, the procedure is amply safeguarded against abuse and the administration is not limited, as in the English bill, to physicians.

So far the leading judicial decision on the subject in the United States is "The People vs. Frank C. Roberts" (Michigan, 1920). Mrs. Roberts, incurably ill, pleaded for death. She attempted to kill herself by drinking carbolic acid. Failing in this attempt, she finally begged her husband to end her suffering. He dissolved Paris green in a glass of water and she died as a result of drinking the contents. Roberts was convicted of willful murder and condemned to life imprisonment. The conviction was confirmed by the Michigan Supreme Court.

However, public opinion does seem to be shifting since the World War. It is gradually establishing an unwritten law in condonation of humanitarian homicide. Records show that while "mercy-killing" is legally murder, the killers are seldom convicted.

The position of the American Medical Association in the matter clearly defined by Dr. Fishbein at the time the British legislation was being discussed. "No civilized country permits murder except in self-defense—"

Dr. Charles F. Potter, president of the Society in the United States, gave his answer thus: "The church may oppose euthanasia — and medical men may bring up their Hippocratic oath (dated 400 B.C.). But common men and women, faced with the practical problem of whether or not they will let their loved ones suffer torment—will cut through all this ancient red tape and somehow make it possible to do the decent and right thing—."

Certainly the question of legalized euthanasia has brought forth expressions of opinion both pro and con from many prominent personnages in the United States and England. The arguments are varied and interesting, although, as was stated above, the question finally resolves itself into the fundamental one of the sacredness of human life.

Those who favor euthanasia maintain, to begin with, that there are definitely incurable diseases. When the British bill was under discussion, Lord Ponsonby quoted the late Lord Moynihan to this effect. The proponents of the bill also pointed out that the sufferer, and *no one else,* should have the right to decide whether life should be continued or not. They mentioned in addition that these cases were few in number. And why, they asked, should it be a crime to grant final surcease of pain to a human being, when we may call in the Humane Society to end the existence of a suffering animal!

The advocates of euthanasia insist that while its opponents stress the point that legalization might facilitate crime, at the present time crime is easy in such cases. They bring to our attention the fact that physicians cannot be reasonably expected to risk the serious consequences of their merciful impulses. Hence the duty falls almost invariably on members of the family. This merciful act is often followed by the suicide of the person performing it.

As for the sufferer himself, our attitude would be modified toward him in case of suicide. Instead of a furtive escape (a leap from a window, gas, the razor, or a draught of some corrosive and searing disinfectant) would be substituted deliberate farewells, an affectionate last word and euthanasia.

Practically every writer on the subject of euthanasia cites the case of Charlotte Perkins Gilman, considered by Carrie Chapman Catt one of our country's twelve most capable women. Suffering from an incurable cancer, she chose to take her own life by chloroform and left a note justifying her suicide. Certainly, these writers maintain, Charlotte Gilman was a woman of courage and no stigma should be attached to her act.

Looked at from the economic standpoint, according to William G. Lennox[1] in the official

1, Lennox, Wm. G.: Should They Live? The American Scholar V. 7 No. 4:454-66, Autumn, 1938.

publication of the Phi Beta Kappa, euthanasia would be a boon to society, because the number of unproductive citizens which it can support is limited. He would select, preserve and improve the good citizen and eliminate the bad. He assails the medical profession on three grounds: first, he asserts that a majority of doctors agree with the views of the advocates of euthanasia, but fear to say things distasteful to the unbridled sentimentality of our times. He cites the case of Sir William Osler, subjected to a whirlwind of abuse because he was reported as advocating chloroforming of those who reach 60.

Second, Lennox states that doctors, in common with political Utopians do not plan for the future in terms of a balanced budget. Third, he asserts that doctors fail to assume leadership in social questions.

Medical science, Lennox continues, tends to repeal the law which has been the mainstay of evolution, the survival of the fit. As for society, it deliberately, systematically and with great cruelty kills its strongest members in war, while it unmercifully prolongs the lives of its weakest.

Among the outstanding Englishmen who have expressed approval of euthanasia are Julian Huxley, Lord Denman, and Dean Wm. R. Inge. It seems anomalous to Dean Inge that a man may be punished for cruelty if he does not put a horse or a dog "out of its misery" but is liable to be hanged for murder if he helps a cancer patient to an overdose of morphia.

One illustrious member of the medical profession in the United States, not only in favor of authanasia, but an extremist on the question, is Dr. Alexis Carrel. "Sentimental prejudice," he says, "should not stand in the way of civilization. It is my opinion that not only incurables, but kidnappers, murderers, habitual criminals of all kinds as well as the hopelessly insane should be quietly and painlessly disposed of."

Dr. Frederic Bancroft, although quoted as saying, "I don't see why we shouldn't give humans the same treatment that we accord animals," admits that it is practically impossible to be certain that any condition is incurable and is dubious that a suitable mechanism could be set up in such cases.

Perhaps Anthony Turano[2] puts the matter most succinctly. "To say, in the face of modern pathological knowledge, that misery must continue until respiration ceases is tantamount to insisting that the pathogenic bacillus is the only proper agent of divine will. If this were true, the medical profession would stand a small chance of reaching Paradise. For if it be human impertinence to accelerate, for charitable reasons, the manifest purpose of a lethal affliction, it is likewise presumptuous to intervene between a batch of God-sent microbes and their natural consequences."

It is an open question whether the 53 per cent of the nation's doctors approving euthanasia for incurables, according to a poll taken in the United States in 1937, would be willing to take on their own shoulders the responsibility for carrying it out.

Dr. Bowman's figures[3] indicating that 45 per cent. of the public indorsed euthanasia would be slightly high in comparison with a poll made by *Fortune's Quarterly Survey for 1937.*

The results were:

	Defective Infants		Incurably Ill	
No circumstances	40.5%		47.5%	
With patient's permission			11.6	
With family's permission	13.9		4.2	
With approval of medical board	23.3		10.9	
With patient's and family's permission		45.0%	1.7	37.3%
With permission of medical board and family's and/or patient's	7.8		8.9	
Don't know	14.5		15.2	

Editorially and officially the medical profession has opposed euthanasia, and the Church has in most instances condemned the practice. Why? For several very good reasons.

The physician is especially interested because, if euthanasia is practiced, he must either administer it or certify to its necessity. But, as a doctor, he is dedicated to the postponement of death and the relief of suffering.

Many physicians who view euthanasia with tacit approval admit they would hesitate to accept the sole responsibility for its administration. Although the common experience is that a man so near death from incurable disease that he begs for merciful release has little or no chance for recovery, the doctor is not infallible,

2. Turano, Anthony: Murder by Request, Am. Mercury 36: 423-429, Dec., 1935.

3. Bowman, W. M.: Euthanasia, Virginia Med. Monthly 66: 723-29, Dec., 1939.

he is not omniscient. Euthanasia would be a weapon in the hands of the less reputable of the profession — those who are not yet honest enough and intelligent enough to know when and where to use it.

Moreover, permit "mercy-killing" and where would there be any stimulus for research or for progress in the field of cancer, arthritis, or other pain-giving disease? There would be one remedy, painless death. Why seek any other?

The second objection of the medical profession is that a stigma will attach to the name of the doctor who administers it as well as to the entire profession, even though it be permissible by law. Why debase the profession which the government has just demoted to the rank of a trade still further to that of executioner? It has been suggested that confidence of patients and their friends would be impaired at a time when it would seem that the acute need is for restoration of public confidence in the medical profession.

If the Hippocratic oath, which states that the physician's duty is to relieve suffering and to save or prolong life and which has been held as a lamp to the feet of the physician since 400 B.C. has any meaning or worth in our skeptical, modern day, casting it aside for the relief of a handful of sufferers is not going to benefit the medical profession. "I will give no deadly medicine to any, though it be asked of me—" has not always been kept inviolate through the ages, but certainly it has gained a measure of confidence for the doctor.

Meanwhile the courts continue to quote Blackstone to the effect that all human assistance in the process of death is "an invasion of the prerogative of the Almighty in rushing into his presence uncalled." The rank and file of the medical profession are not under the illusion that they have God-like powers of judgment and are loath to snuff out life, which they cannot rekindle.

Dr. Henri Coutard has stated: "Often in the medical arts we make mistakes. Life is too big a thing to take away. Even in hopeless cancer cases it is possible to give relief. Men born crippled or feebleminded have been responsible for some of the great works of art. Why should their lives be taken?"

Dr. James Walsh made an interesting comment which may be apropos here. He states that rarely has a patient at Mother Alphonsa's Home for Incurable Cancer expressed a wish to die.

A. A. Brill[4] gives the best psychological argument against euthanasia. That is, that euthanasia would have a profoundly disturbing influence on the race. Killing was the law of the forest; primitive races left their ill, aged and infirm to die from exposure and starvation. Before civilization was possible, the individual had to be taught to control his impulses, and above all, to stop killing. At best this impulse is only repressed, and mercy-killing, by destroying the sacredness of human life, would permit another outlet for the death instinct, to which we now give free vent in war. Euthanasia can and will produce a retrogression to a lower or sadistic level of behavior.

This opinion, given in 1936, may or may not have significance in the light of present European developments. Germany and England, the two nations where euthanasia has been most freely advocated, are today engaged in bombing each other out of existence. There has been a significant decrease in publicity given euthanasia in current periodical literature during the past year and a half, men's minds being occupied with the legal version of killing — war.

Zona Gale[5] empasized the same point: "Only when the race realizes that, no matter how disguised, killing is a primitive impulse, to be outgrown like any other form of inadequacy, will killing, as a social program for anything, receive its general quietus."

The editor of *Commonweal* has invited attention to the preeminence and high stamina of some of the groups which have practiced killing, not for punishment, but for social convenience. Sparta is no more; Athens bowed to Rome; the barbarians overran Rome, which was salvaged through the power of the Church.

There is one more dark side of the picture — namely, that euthanasia advocates have unwittingly suggested still another dubious side

4. Brill, A. A.: Reflections on Euthanasia, J. Nerv. and Ment. Dist. 84:1-12, July, 1936.

5. Gale, Zona: In Right and Wrong of Mercy Killing, Lit. Dig. 124:22-3, October 23, 1937.

of war, mercy-killing for the mental and physical derelicts of the First World War. Will more killing remove the first stain of blood?

Dr. Bowman indicates the futility of euthanasia. "So many drugs are available in this day and time that if properly selected and administered it will not be necessary for the patient to linger on in agony with pain unrelieved."

Finally, for those suffering incurables like Charoltte Gilman whose consciences dictate an end of pain, euthanasia is being practiced now. Why give it legal protection and force the role of executioner on the medical profession?

PUT THE DOCTOR ON A PAR WITH OTHER DEBTORS

The average run of citizens who take automobiles to a garage for overhauling or repairs does not expect to recover his property until he has paid the mechanic's bill. How different is his attitude towards the doctors indebtedness?

The doctor is mechanician, engineer and all around repair man for the ailing human frame. Yet he rarely gets paid when his work is done.

According to an editorial some time ago in *America* the Metropolitan Life Insurance Company made an interesting survey among its millions of policy holders. The survey reports that the average annual payment for the average family to its physician was $140.00. Only the doctor himself knows when and after what delays this sum was finally paid to him.

The commentator says wisely:

"Now the cost of repairing the human machine engenders one of the most interesting problems of the day. It is a most important factor in the family budget. From very many parts of the country the report has come that, after the bill for medical services has been rendered, the family physician, who floated into the house with healing upon his angelic wings, assumes the menacing part of a Shylock.

"That medical, hospital, and surgical fees do impose a terrific burden upon some families is beyond all question. To many a man working for a salary, the physician's order to go to a hospital for an operation, is worse than a decree in bankruptcy. It means, in many instances, the loss of his job, and a period in which bills pile up so high that he must work for the rest of his life to pay them.

"This fact is recognized by the profession. For several years medical, surgical and hospital committees have been surveying the field, and as they are animated by an honest purpose, we can rely upon an accurate and intelligent diagnosis of a very serious social problem. But it has already become apparent that the reason of many a heavy hospital bill is the fact that the patient and his family have demanded unnecessary, and even luxurious, accommodations and special service. Even when they are sick, some people never lose their ambition to keep up with the family of Jones.

"One aspect of this problem should not be lost sight of. If some physicians demand, and collect, exorbitant fees, others never receive the modest fees which they ask. Every profession has its list of non-paying clients, but the physicians probably have the longest catalogue. Men who have been snatched from what Mr. Toots would designate that the Cold and Silent Tomb, are so jubilant that they are quite unable to think of anything so prosaic as a bill for professional services rendered. Besides, now that the crisis is safely passed, they are too busy arranging a trip to Europe.

"Most families have a tale of the Exorbitant Physician. There is such a creature. But there is also the physician who comes home tired out after a long day, to wonder where he can scrape enough money together to meet his office rent. In his behalf, we would urge the obligation, sanctioned by all law, human and Divine, to pay one's debts as promptly as possible."

IN MEMORIAM

DR. ANDREW J. MARKLEY

Dr. Andrew J. Markley, the oldest practicing physician in Boone County, Illinois died December 13th, at St. Joseph's Hospital, Belvidere, Illinois.

Dr. Andrew J. Markley was born May 3, 1858 in a log cabin near Archbold, Ohio. His boyhood days were spent in that vicinity and he was graduated from Bennett Medical College, March 21, 1881. The Doctor moved to Boone County, Illinois, in the fall of that year and began the practice of medicine. He was continuously engaged in the practice of medicine in Boone County from that time until his death with the exception of a period in which he served

as a District Health Officer of the State of Illinois in District No. 2.

Dr. Markley served as Treasurer of the Illinois State Medical Society for twenty-seven and one half years, his period of service was continuous up to the time of his death; he held

Dr. Andrew J. Markley

office in the society the second longest term since the inauguration of the State Society one hundred years ago.

On June 21, 1887, he married Miss Belle Bills in Fairbury, Nebraska, she died in 1919.

Dr. Markley assisted three younger brothers in the study of medicine — Dr. Paul Markley of San Diego, California, who survives, Dr. Will Markley and Dr. George Markley who predeceased him and who practiced in Rockford and Belvidere respectively. The doctor is survived by one daughter, Sue M. Shanesy of Evanston, a sister, Jennie Markley of Defiance, Ohio, a sister, Edith Randall of Belvidere, and his brother, Dr. Paul Markley of San Diego.

Doctor (commenting on lawyer who has just finished his speech to the jury): "If he had his conscience taken out it would be a minor operation."—Rocky Mt. Med. Jour.

ILLINOIS STATE MEDICAL SOCIETY COMMITTEE ON MEDICAL BENEVOLENCE

The House of Delegates of the Illinois State Medical Society at its Annual Meeting held May 21-22-23, 1940, *voted that certain changes be made in the Constitution and By-Laws to enable the Society to establish a Benevolent Fund for indigent physicians and their widows.*

The plan adopted very closely resembles the one which has been operating in Pennsylvania for the past thirty-seven years.

We are publishing herewith the personnel of the Committee together with an outline of the purposes and the power given the Committee to carry on this work.

Committee on Medical Benevolence, John S. Nagel, Chairman 185 N. Wabash, Chicago, Ill. Charles H. Hulick, Shelbyville; Clarence H. Boswell, Rockford.

PURPOSES OF THE COMMITTEE

1. To create a Benevolence Fund:
   a. Through allocation of $1.00 each year from dues of each member.
   b. Through gratuities, endowments, etc.
   c. Through the efforts of the Women's Auxiliary to the Illinois State Medical Society.
2. To investigate cases of alleged financial difficulties on the part of members, their widows or widowers.
3. When found worthy, to appropriate regular monthly benefits not to exceed $25.00 to $30.00 per month in any one case. When deemed advisable, may appropriate more over a short period of time when rehabilitation seems probable.
4. To designate the component society secretary in each county as the county chairman to submit applications from members for benefits, then to see that a questionnaire form is properly executed to give the desired information relative to the case. The councilor of the District may assist the Committee in submitting names of members, their widows or widowers, when he believes the individual is entitled to the benefits herein prescribed.
5. When it is the opinion of the Committee that the case is a worthy one and benefits should be allowed, the Chairman of the Committee

should notify the Secretary of the State Medical Society, stating the amount agreed upon as the regular allowance, stating the intervals at which the benefits shall be paid, so that proper vouchers may be submitted.

THE INVESTIGATIONS

When it is reported to the Committee that a member, widow or widower of a member is needy and unable to secure the necessities of life, a questionnaire form shall be submitted from the Secretary's office asking for the following information:

1. A brief social history of the applicant, past and present. Data concerning reasons for being in want whenever possible, and all other pertinent information which will enable the Committee to take the proper action.
2. A brief financial history including present assets and income, sources and amount.
3. Disbursing of present resources (rent, food, clothing, etc.).
4. Statements as to probable permanency of the present distress.
5. Any possible sources of assistance such as:
   a. Relatives .....
   b. Friends .....
   c. Fraternal Organizations .....
   d. Insurance .....
   e. Pensions .....
6. Have all sources of help been solicited?
7. Additional information. Means by which influence might be exerted to find employment or some other source of income. Is there a possibility of rehabilitation? (With moderate financial assistance over a short period of time, would it be possible for the applicant to become self-supporting?)

PROCEDURE

Requests from members, their widows or widowers for assistance, if submitted to the Secretary, shall be referred to the Committee promptly. At the same time a questionnaire form will be submitted to the applicant or to the county society secretary, or to the Councilor if the information is submitted by him. All possible information which will aid the Committee in determining the eligibility for assistance, the amount actually needed, or if rehabilitation through short time payments is probable, should be submitted promptly.

Each case will receive the proper consideration by the entire committee which shall pass final judgment on:

1. Eligibility for aid.
2. The amount of aid.
3. Whether for a short time or permanently.

The decision of the Committee shall be final and there will be no higher authority within the Society to whom appeals from decisions of the Committee can be referred.

In the event that additional income is received and the individual is no longer eligible for further benefits, the county society secretary or the Councilor submitted the data, should notify the Committee of these facts promptly.

As soon as a reasonable amount is accumulated in the Benevolence Fund, only the income from the Fund shall be used to pay benefits.

The Medical Benevolence Fund shall be subject to an annual audit as are other funds of the Illinois State Medical Society, although merely the amount of the Fund, the payments made during the year, the additions to the Fund, and the interest from investments shall be mentioned. The names of beneficiaries shall not appear in the annual audit, nor shall they be mentioned in the annual report of the Committee to the House of Delegates.

The Secretary of the State Medical Society shall maintain a separate file for all correspondence relative to beneficiaries, amounts paid, investigations and minutes of meetings of the Committee, which shall be a closed file and not open to inspection by others than members of the Committee, the Auditor, or a regularly designated Committee of the House of Delegates.

As the regular vouchers of the Illinois State Medical Society are paid through the State Bank and Trust Company of Evanston, all funds for benevolence purposes shall be maintained in another bank and payments for benevolence purposes shall constitute the only vouchers drawn on these funds. The council of the Illinois State Medical Society has allocated the sum of $5,000.00 maintained in the National Bank of Monmouth for several years as a Certificate of Deposit, as the nucleus for the Benevolence Fund, and payments shall be made from this fund on this bank.

NOTE: The above report and procedure was presented to the Council of the Illinois State Medical Society in regular session on August 4, 1940, by the Chairman of the Committee on Medical Benevolence. The report and procedure were approved, and the Committee instructed to make the necessary arrangements to function immediately. The Council was authorized by the House of Delegates at the 1940 annual meeting to approve a method of procedure so that the work could be started with a minimum amount of delay.

TRANSFUSION OF CONCENTRATED SUSPENSIONS OF ERYTHROCYTES FOR ANEMIA

Sixty-one patients with anemia were treated by MacQuaide and Mollison with an erythrocyte concentrate. The results suggest tentative conclusions as to the advantages of such therapy. Hypertonic saline solution was used as a diluent for the erythrocyte suspension because it produced less hemolysis than physiologic solution of sodium chloride. Hemolysis was further reduced by adding 8 per cent dextrose, insuring a concentration of dextrose of at least 1 per cent in the final mixture. Hypertonic saline solution is necessary presumably because the citrate saline into which the blood is originally taken is hypertonic and cells stored with this fluid become hypertonic to physiologic solution of sodium chloride. Very few reactions were encountered, suggesting that the leukocyte gel is responsible for the reactions following whole blood transfusions. In the preparation of the concentrated suspension, infection must be avoided. The cell suspension may be given (as soon as possible after preparation) through an ordinary administering apparatus. If the leukocyte gel is not removed, it is advisable to use a gas mantle or some other type of filter. The suspension was not warmed before administration. One bottle of the cell suspension, that is the cells of two bottles after plasma has been removed, usually raises the hemoglobin approximately 10 to 15 per cent. Thus, in one case, following a transfusion of six bottles of the cell concentrate the hemoglobin rose from 26 to 90 per cent and the erythrocytes from more than one million to more than five million per cubic millimeter. The use of the concentrated suspension is contraindicated in shock, in which the immediate need is to restore blood volume rather than to increase the number of erythrocytes. The incidence of rigors among the 61 cases was 6.5 per cent, in contrast to 22 per cent among 45 cases in which transfusions of whole stored blood were used.

CONGENITAL PREPYLORIC OBSTRUCTION

Touroff and Sussman report a case of congenital gastric obstruction in a premature infant due to a complete prepyloric septum of mucous membrane. Three and possibly all 4 offspring of the patient's father and the father's 2 sisters suffered from some congenital anomaly; all but the patient died in infancy. Symptoms of high obstruction commenced at birth. Additional features were failure of the child to pass meconium, and icterus which was more intense than normal. These manifestations suggested additional obstructive anomalies of the lower intestinal tract and bilary duct system. Roentgen examination revealed an obstructive lesion in the distal portion of the stomach or first portion of the duodenum. Operation, on the fifth day of life, consisted of multiple incisions of the prepyloric septum and pyloroplasty. No other anomalies were found. The early postoperative course was uneventful. The icterus was concluded to be an accompaniment of prematurity and failure to pass meconium as due to a lack of the normal stimulus to intestinal peristalsis, which apparently is initiated by the passage of gastric contents into the duodenum. On the eighteenth postoperative day a secondary, complete intestinal obstruction developed, and five days later, when another operation was about to be performed, the obstruction was relieved spontaneously. The course thereafter, although temporarily stormy, was one of improvement ending in recovery. Roentgenograms taken five months after operation revealed the gastrointestinal tract to be normal except for rapid emptying of the stomach and intestinal hypermotility. The follow-up period now is seventeen months. To the authors' knowledge the case is the first of its kind to be reported.

BLOOD SUBSTITUTES FOR ACUTE HEMORRHAGE

According to Buttle and his associates, storage of blood in banks has gone far to mitigate the delay involved in obtaining and bleeding donors, but, until blood can be stored for longer than a few weeks, blood banks will remain either wasteful or inadequate. There is need therefore for a blood substitute which can be stored for long periods, accumulated in large stocks and immediately available where casualties are likely to be received. The authors consider the therapeutic action of various blood substitutes has been compared, under standard experimental conditions, with those of whole blood, and the conclusion was reached that plasma is the only one which, in the cat, consistently gives results approximate to those obtained with whole blood. The authors place the other substitute solutions in the following descending order of value: serum, hemoglobin-Ringer, gum-saline, red cells in crystalloid solution, isotonic saline and isotonic dextrose. They conclude that filtration is the best method of overcoming the danger of plasma infection.

FIFTEENTH ANNUAL MEETING NATIONAL CONFERENCE ON MEDICAL SERVICE

(FORMERLY THE NORTHWEST REGIONAL CONFERENCE)

RED LACQUER ROOM, PALMER HOUSE, CHICAGO

SUNDAY, FEBRUARY 16, 1941

FORREST L. LOVELAND, M. D., Topeka, Kansas, President
HAROLD M. CAMP, M. D., Monmouth, Illinois, Secretary

PROGRAM

9:00 A. M. Registration.

9:30 A. M. 1. VOLUNTARY GROUP MEDICAL CARE PROGRAMS.

(1) "The Second Year" ..... MR. J. D. LAUX, *Executive Director, Michigan Medical Service, Detroit, Michigan*

(2) "Why Are We Waiting?" ..... W. M. HARTMAN, M. D., *Macomb, Illinois*

(3) "What We Learned from the Wisconsin Experiments" ..... MR. J. G. CROWNHART, *Madison, Wisconsin*

(4) Question and Answer Period.

10:30 A. M. 2. MEDICAL PREPAREDNESS.

(1) IRVIN ABELL, M. D., *Louisville, Kentucky*

(2) MORRIS FISHBEIN, M. D., *Chicago, Illinois*

(3) COLONEL LEONARD ROWNTREE, M. D., *Chief, Medical Division, Selective Service System, Washington, D. C.*

(4) OLIN WEST, M. D., *Chicago, Illinois*

(5) Question and Answer Period, conducted by ROY W. FOUTS, M. D., *Omaha, Nebraska*

12:15 P. M. NOON-DAY DINNER.

1:30 P. M. 3. President's Address . . . FORREST L. LOVELAND, M. D., Topeka, Kansas.

1:45 P. M. 4. Report of Nominating Committee; Annual Election of Officers; Selection of place for 1942 Meeting.

2:00 P. M. 5. STATE MEDICAL SOCIETIES' POST GRADUATE PROGRAMS.

(1) "A Rural State's Program" ..... H. E. SNYDER, M. D., *Winfield, Kansas*

(2) "As Carried On in Minnesota; A Cooperative Program" ..... W. A. O'BRIEN, M. D., *University of Minnesota Medical School, Minneapolis, Minnesota*

(3) "The Illinois Program" ..... ROBERT S. BERGHOFF, M. D., *Chicago, Illinois*

(4) Question and Answer Period.

3:00 P. M. 6. LEGISLATIVE PROBLEMS.

(1) Federal ..... E. H. CARY, M. D., *Dallas, Texas*

(2) State ..... MR. J. W. HOLLOWAY, JR., *Chicago, Illinois*

(3) Question and Answer Period; Conductor to be Announced.

3:45 P. M. 7. MEDICAL CARE FOR SOCIAL SECURITY CLIENTS.

(1) "Minnesota's Plan for the Care of the Medically Indigent" .....
MR. WALTER F. FINKE, *Director, Minnesota Division of Social Welfare of the Department of Social Security, St. Paul, Minnesota*
ALFRED W. ADSON, *Chairman Medical Advisory Committee to the Minnesota Division of Social Welfare, Rochester, Minnesota*

(2) MR. WALTER G. STUMBO, *formerly Attorney for State Department of Social Welfare, Topeka, Kansas*

(3) CHAS. H. PHIFER, M. D., *Chairman, Illinois State Medical Society Advisory Committee to State Department of Welfare, Old Age Assistance Division, Chicago, Illinois*

4:45 P. M. 8. "The Annual Meetings from the Standpoint of The Exhibitor" .....
..MR. C. H. WANTZ, President, Medical Exhibitors' Association,
Convention Manager, General Electric X-Ray Corporation, Chicago, Illinois

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
J. H. Hutton, M. D.
Ralph Peairs, M. D.
R. K. Packard, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois
Address all letters and communications to the Chairman.

C. H. Phifer, M. D.
C. B. Reed, M. D.
C. B. Ripley, M. D.
C. E. Wilkinson, M. D.
W. M. Hartman, M. D.

MEDICAL ECONOMICS COLUMN FOR FEBRUARY

Amid the confusion and argument now going on at Washington, at this time, where charges and countercharges are flying fast, particularly in regard to the Defense Program, it becomes increasingly difficult to know what is really going on there of interest and importance to the medical profession. To be sure the papers of the nation are filled with news in regard to proposed plans for defense, as well as news on the war front of Europe, but little is to be seen of what is going on behind the scenes. Occasionally some small article appears on an inside page in small print, but all too often it is overlooked in the hurry and rush of modern life. We must always be cognizant of the fact that plans for changing the manner of conducting the practice of medicine are being held ready for the proper time to again bring them to the attention of the public.

On January 7, 1941, the press of the nation was presented with an article in which Senator Wagner of New York was quoted as saying that in line with President Roosevelt's call for widened "Opportunities for adequate medical care," he and others were sponsoring a bill, which would provide for federal and state cooperation in the broad program calculated to cost $98,000,000 the first year. Wagner after a conference with the President said "that it was likely that an expansion of health facilities would be worked out in connection with the defense program. As tentatively outlined this program would call for cooperation between the federal and state governments in construction of hospitals, payment of compensation for disability wage losses, and expansion of maternal, infant and child health and welfare service, general public health services and general medical care." Certainly the above coming from so authentic a source as the senior Senator from New York, who has been the author of most of the welfare bill presented to Congress during the past eight years, should make even the few "doubting Thomases" still remaining in the medical profession realize that the plan for altering the practice of medicine is still ready in Washington for the attention of Congress when that body has time to vote on it. And it is in strong friendly hands. It could be rushed through in rapid fashion if and when the proper opportunity appears.

The job of coordinating "all health, medical welfare, nutrition, recreation and other related fields of activity affecting the national defense," has been handed to Federal Security Administrator, Paul V. McNutt. He will be assisted by The Health and Medical Committee of the National Defense Council. The Committee will help to organize the country's medical resources, and will deal with the problems of industrial health and medicine, nursing, dentistry, medical education, hospitals and negro health. Mr. McNutt will have jurisdiction over the medical aspects of the draft and the rehabilitation of rejected men, over civilian and military medical supplies, research important to national defense; sanitation and health in defense industry sections and mobilization areas; selection of airplane pilots, health and medical service in defense regions; transfer of funds for health and welfare purposes; and correlation of all governmental medical agencies. A careful perusal of the above would lead to the conclusion that he had been given a most complete and inclusive position to control the practice of medicine as it can be interpreted to affect defense. One or two similar assignments from the President would make control of the medical profession considerably closer.

The trial of the American Medical Association for violation of the Anti-trust law has been tentatively set for February 5, 1941 by Justice F. Dickinson Letts. This should be followed carefully by the entire medical profession, either in the lay press, if it makes that publicity, or in

the pages of the Journal of the A.M.A., where it will of course appear.

On pages 234 of the January issue of the *Journal of the A.M.A.* appears an editorial under the heading "California Governor advocates universal compulsory Health Insurance." This should be carefully read for it shows what can happen to the plans of the medical profession in the field of Health Insurance, before they have been tried out sufficiently to arrive at a definite conclusion when brought to the attention of reforming officials. Of course we hope that the medical profession of California will be able to exert sufficient influence to control any comtemplated legislation in this field. It should serve as a warning to other state medical societies, so that they will be on their guard against similar bills in their respective states.

On page 142 of the J.A.M.A. of January 11, 1941 appears an editorial on "The Old Congress Passes, The New Begins," which gives a good resume of what occurred in Congress last year and also what is contemplated for the coming year.

The inauguration of a Republican Administration in Illinois a few weeks ago, will result in many changes affecting the health of its citizens. New departmental heads will be appointed as well as Superintendents of many of the State institutions. It is to be hoped that these positions will be filled with most capable men who will deliver satisfactory service to the people of the state and will work in cooperation with the medical profession, who stand ready and willing as always to cooperate with the state officers both as individuals and as an organization, the Illinois State Medical Society, in every possible way. There are many problems of paramount interest to the medical profession, in state administration, and we hope and believe that the incoming administration will seek and receive the cooperation of the medical profession.

The National Physicians Committee is expanding its activities again in order to be ready and able to meet any proposed inimical legislation in the new Congress. It is forming state committees, and generally strengthening its organization. In the near future it will probably do considerable work in Illinois. Many medical men will be contacted to help in the work of the Committee and we feel that it should have our close attention and consideration. There is much work to be done in the field they have entered and it is time for us as individuals to decide how much we wish to cooperate.

Again, we want to bring to your attention the annual meeting of the National Conference on Medical Service, to be held at the Palmer House in Chicago, Sunday, February 16, 1941. The Secretary this year is our own, Dr. H. M. Camp. He has assured me of a most interesting program and would like a good attendance of Illinois physicians. Those of you, who have attended meetings of its predecessor the Northwest Regional Conference, know that it is the best meeting of the year for the consideration of the economic problems of the medical profession.

E. S. Hamilton, M.D. Chairman
Medical Economics Committee

Correspondence

TREATMENT OF HYPERTENSION

To the Editor: In the article on the surgical treatment of hypertension by Peet, Woods and Braden in the November 30th issue of the Journal of the American Medical Association, the authors claim "That the surgical treatment of hypertension by . . . . splanchnicectomy and the lower dorsal sympathetic ganglionectomy offers a better prognosis in cases of severe hypertension than any other form of therapy as yet reported." Before the avalanche of operations descends upon us, let us examine a few of these claims. The authors compare a five year survival period of 50% with a series by Wagener and Keith (reference not stated) with a survival rate of 9% after 5 to 9 years, which must have been an unusually malignant group. One would ask why the authors did not furnish their own controls for comparison, which would have been more satisfactory in every way and why they did not make comparisons with other series in the literature. It is wise to remember that when an era of surgeons fail to run controls a later era will do so, as we are now doing in acute pancreatitis, gastric ulcer and cholecystitis.

I wish to present several other series for comparison. R. S. Palmer (New Eng. J. Med. 215: 569, 1936) treated 169 cases medically and has

made a careful analysis of his results with the idea of comparing them with the surgical treatment. They are very suitable for comparison with Peet's cases because both had about the same number of severe cases with systolic b.p. above 230. Fifty per cent, had a fall in b.p., 90% of the mild cases were relieved of symptoms, 75% of the moderate group and 46% of the severe group. Only 2 out of 113 in the mild and moderate groups became worse under treatment. The percentage of deaths was 20.1. Of the severe group over 45 years Palmer states: "Any real amelioration by surgical intervention is inconcievable."

Marshall (Brit. Med. J. 468: Mar. 12, 1932) studied 100 cases over a 4 year period, with a higher average systolic b.p. than in Peet's series. There were 19 deaths and 58%, all who presented themselves, were improved at the end of the period. Alhausen and Kerr (Am. J. Med. Sci. 178:470, 1929) got relief in 82% of a large series and Stieglitz got 77% relief in 250 cases on medication. Barker relieved 35 out of 45 with cyanates (J.A.M.A. 106:763, 1936) Wolffe and Digilio (J. Lab. and Clin. Med. 22:374, 1937) using tissue extracts, got relief in 62% with no permanent fall in b.p. They used 50 patients and 100 as controls, of those treated, only 1 died in the course of over a year, 3 controls died, a death rate of under 3% per year. Hutton using X-ray (Personal communication) in 385 cases got good results in 59%, he quotes also, Martin, Baker and McGuffin who got good results in 77% in a total of 307 cases. Buck (Ann. Int. Med. 11: 514, 1937) reduced the b.p. in 66% of a group by the use of psychotherapy. Elberg and Skulskry (J. Medsch, Tsikly, Kiev. 2:213, '32) got 90% good results in 63 cases with cyanates. In my own series of 92 cases treated medically (J. of Nerv. and Mental Dis. 91: 157, 1940) 45 per cent were reduced to normal b.p., there were 16 deaths, 6 failures, and in 70 there was improvement with a fall in b.p.

These results can be compared with those of Peet et al. There were 350 cases with 3.4% operative mortality and a subsequent mortality of 95. The blood pressure was considered reduced in 42.6%, in 2.4% the b.p. was increased and the rest unchanged. Of the 36 cases with normal renal function preoperatively as shown by the concentration test, 36% were worsened postoperatively, of 62 patients who had no preoperative incapacity, 16% were incapacitated postoperatively, 39% were entirely free of symptoms, 11% were unchanged and 3% made worse.

There is reason to believe that the mild cases may be made worse by operation. With a 30% mortality which seems unusually high, one would judge that the operation cannot save those that are too far gone and may even put an extra load on some who might have survived. It supports the view, the mild and moderate cases can be helped by medical means, the malignant cases cannot be by any means. Unless surgery can save the malignant cases it has no use as a treatment.

It is from the death rates however that we learn most about the surgical treatment. Peet et al. had a death rate of 30.5%, Palmer's was 20.1, Marshalls 19 and in my series 17.5%. For various reasons these series are not exactly comparable but the least that it does is to put the burden of proof on those who advocate surgery.

Splanchnicectomy and similar operations it is agreed by authorities (Heymans et al: Gulesfelder Lecture, Chicago 1937) cannot reduce hypertension by reducing the vasospasm, they are insufficient. A. C. Ivy (Chicago Medical Society, Nov. 1938) is of a similar opinion. He states that splanchnic section does not attack the fundamental etiology of essential hypertension and that such operation is an allopathic and not an etiologic procedure.

And this is the dilemma of surgery, it does not reach the source of the trouble, only medical treatment intelligently applied can ever hope to reach the source.

1352 E. 55th St.
S. K. Robinson

PARAFFIN WAX DRESSINGS FOR BURNS

Xenia, Ill., Jan. 27, 1941.

To The Editor,

In 1923 I contributed a brief article on paraffin wax dressings to the Journal A.M.A. It was therefore with much interest that I read the article of Chester Ziess in the last issue of the Illinois Medical Journal. For many years I have been amazed by the almost perfect cosmetic results obtained by use of the method which he again brings to attention, as contrasted with the dismal cosmetic results of the treat-

ments I still see so commonly used. Why a method which gives 100% success in all but the hopeless cases, and does more than is even claimed for any other method, is not the only one in vogue, I fail to understand. For twenty-five years I have used this on second and third degree burns. Although I do not use preliminary disinfection (except in cases of neglected and already infected wounds) except for a daily rinse with normal saline, I have yet to see an infection when the dressings are changed and the surface dried daily. Moreover, if one is persistent and patient, skin grafting is not needed even in third degree burns. As a rule these heal smoothly and with surprisingly little scarring.

I recall one little girl whose entire arm and shoulder, except the hand and dorsum of the forearm, was so deeply burned by fire as to slough off like a bacon rind. Although I dressed this daily for eight months, it healed smoothly and with never a sign of infection. There was, however, contracture at the elbow and axilla, but I removed this under anesthesia, extended and immobilized the arm, and resumed the dressings for two months longer, when these parts were again epithelialized and perfect joint action obtained.

I also employed this method in the case of a child of two, who jack-knifed into a boiler of hot water, burning about a third of the body surface, much of it in third degree. Only one small scar on the back now remains in evidence. I have seen burned areas heal smoothly although they appeared to have been scooped out as if by a shovel, and have yet to see any superficial tissue defect in a healthy person, due either to burn or trauma, which failed to heal under the persistent use of daily wax dressings, although some of these were of the same nature as were those my colleagues treated by skin grafts.

In severe burns there is some pain for the first four or five dressings, even when a spray is used, especially in cases of burns of the extremities. Once applied the wounds are clean and painless.

As this matter has been much neglected of late years, I trust you can present this comment to the profession.

L. D. McMillan, M.D.

YOUR MEDICO LEGAL COMMITTEE STILL FUNCTIONS

Kankakee, Ill., January 28, 1941

To The Editor:

Since the change in 1939 of the defense plan for the members of the State Medical Society having malpractice suits, fewer and fewer cases have been reported to members of the Medico Legal Committee.

It is believed this is due to two reasons. First, that less suits are filed or threatened. Second, that many members of the Society do not understand the Committee still functions and are of as much, or more assistance to distressed members than before.

It is urged that all cases be reported as soon as a suit is threatened or filed. Often an experienced member can prevent suits by interviewing the plaintiff or the expected medical witness for the plaintiff. In other states not having this service there are more malpractice suits filed and this insurance is more expensive.

The name and address of the Chairman and Secretary of the Medico-Legal Committee appears in this Journal each month.

R. O. Hawthorne, Secretary
Kankakee, Illinois

AN ACT TO CREATE A COMMISSION FOR EDUCABLE MENTALLY HANDICAPPED CHILDREN AND TO DEFINE THE POWER AND DUTIES THEREOF

"Educable Mentally Handicapped Children" Defined

For the purpose of this Act the term "educable mentally handicapped children" shall include all persons under eighteen (18) years of age, who by reason of lack of development, injury or disease, have not developed sufficient intelligence to adjust themselves to their environment, but who can probably become self-supporting or able to make a permanent adjustment outside of an institution with special supervision and training.

Commission for Educable Mentally Handicapped Children

There is hereby created for the purpose herein specified, a commission consisting of the Director of Public Welfare, Superintendent of Public Instruction, Director, State Department of Labor Director of Public Health, four (4) prominent citizens actively interested in the problem of the mentally handicapped child, who shall be appointed by the Governor without regard to political affiliations. In choosing the prominent citizens the Governor shall invite nominations from leading university, medical, educational, and social organizations in the state.

Two (2) of the first members to be appointed shall serve for a term of two (2) years, and the other two (2) shall serve for a term of four (4) years. Thereafter appointments shall be for a term of four (4) years, the Director of Public Welfare, Superintendent of Public Instruction, Director, State Department of Labor, and Director of Public Health, to serve or appoint persons to serve for them.

The Commission shall be known as the Commission for Educable Mentally Handicapped Children. The Commission shall be appointed on or before August 1, 1941, and shall at their first meeting elect from their number a chairman and a secretary. The records shall be kept separately but under the the supervision of the Department of Public Welfare.

Regularity of Meetings.

The Commission shall meet at least (6) six times per year. The members of the Commission for Educable Mentally Handicapped Children shall serve without compensation. Traveling expenses for meetings will be paid to those members whose expenses are not already paid by the state.

Duties of the Commission.

The Commission for Educable Mentally Handicapped Children shall have power, and it shall be its duty:

(a) To coordinate the administrative responsibility and the services of the three (3) State Departments concerned as far as the welfare of the mentally handicapped child is affected; to compose any differences that may arise between departments:

(b) To stimulate all private and public efforts throughout the State in the care, treatment, education, and social service of the mentally handicapped child, and to coordinate such efforts with those of the State Departments into a unified and comprehensive program:

(c) To promote special classes and competent special instruction for all types of educable mentally handicapped children in all parts of the State, and to arrange for the special training of teachers for such classes:

(d) To promote adequate provisions for medical diagnosis and management of mentally handicapped children in all parts of the State:

(e) To promote vocational guidance, training, placement and social adjustment on an individual case work basis for all mentally handicapped children in need of such service:

(f) To study the situation in Illinois and in other States continually with a view of improving the service through administration and legislation:

(g) To promote facilities for the care of those children who are not doing well in their homes in boarding homes where possible:

(h) To promote a vocational school of the colony or village type for temporary training of those educable mentally handicapped who are not doing well in their own homes, boarding homes or schools and who are showing early signs of dependency or delinquency with the view of eventually returning them to their homes or community. This school may serve as a clearing house and demonstration center for teaching this type of child.

(i) Finally, the Commission shall have authority to set up standards and to decide whether a given mentally handicapped child will profit by each type of training and care provided under this law.

EXAMINATIONS FOR APPOINTMENTS IN THE MEDICAL CORPS OF THE U. S. NAVY

The Surgeon General of the Navy, Rear Admiral Ross T. McIntire, (MC), U.S.N., announced the next examination for appointments as commissioned officers in the Medical Department of the Navy will be held at all of the larger naval hospitals and at the Naval Medical Center, Washington, D. C., on May 12 to 15, inclusive, 1941. Applicants for appointment as Assistant Surgeon, effective approximately two months from date of examinations, may now request authorization to appear for examination. Requests for such authorization should reach this bureau prior to April 21, 1941.

Applicants for appointment as Assistant Surgeon are required to be citizens of the United States between the ages of 21 and 31, graduates of Class "A" medical schools, have had at least one year of intern training in a hospital accredited for intern training by the Council on Medical Education and Hospitals of the American Medical Association, and to meet the physical and other requirements for appointment.

The naval service affords excellent opportunities for professional advancement. Medical officers receive the same pay and allowances as other officers of the Navy in corresponding ranks and the equivalent amount of service.

A circular of information for applicants for appointment as medical officers of the Navy, containing full information regarding physical requirements, professional examinations, rates of pay, and promotion and retirement data may be obtained by addressing the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

ANNOUNCEMENT OF VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meting of the Association which will be held at Boston, Massachusetts May 26th, 27th and 28th, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, 133 Bid-

dle Street, Kane, Pennsylvania not later than April 1st.

The Committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays. Dr. Brien T. King of Seattle, Washington received the Award for the year 1940 in recognition of his essay entitled "A New and Function-Restoring Operation for Bilateral Abductor Cord Paralysis."

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association. This will not prevent its further publication, however, in any journal selected by the author.

CENSUS BUREAU

The lowest infant death rate in the nation's history was recorded in 1939, according to tabulations made public by the Census Bureau, Department of Commerce.

The 1939 infant death rate of 48.0 deaths per one thousand live births is based on 108,532 deaths of infants under one year of age. In 1938 there were 116,702 deaths which resulted in a rate of 51.0. The 1937 rate was 54.4 based on a total of 119,931 deaths. The record-breaking mark of 1939 represents the culmination of two decades of general decrease in infant mortality.

Decreases in the infant mortality rate in 1939, compared with the previous year, were reported by forty-two states and the District of Columbia. The rate rose during the same period in six states. Minnesota's rate of 35.4 was the lowest last year. New Mexico, with a rate of 109.3 and Arizona, 95.5, reported the highest rates last year.

Infant mortality rates of the forty-eight states and the District of Columbia for 1939 and 1938 follow:

State	1939	1938	State	1939	1938
Alabama	59.6	60.8	Nebraska	36.5	36.4
Arizona	95.5	98.8	Nevada	42.8	47.7
Arkansas	46.1	51.4	New Hampshire	46.0	47.6
California	42.2	43.7	New Jersey	38.4	39.5
Colorado	54.8	60.2	New Mexico	109.3	108.7
Connecticut	36.1	36.3	New York	39.3	40.6
Delaware	40.3	52.8	N. Carolina	58.3	68.6
Dist. of Columbia	47.6	48.1	North Dakota	48.9	49.8
Florida	56.3	57.9	Ohio	42.7	43.3
Georgia	58.5	67.7	Oklahoma	48.2	49.0
Idaho	45.5	44.6	Oregon	36.6	39.2
Illinois	37.4	40.9	Pennsylvania	45.6	45.9
Indiana	39.3	42.5	Rhode Island	39.6	43.8
Iowa	38.8	40.5	S. Carolina	66.4	80.3
Kansas	39.5	43.0	South Dakota	42.6	43.8
Kentucky	52.2	61.3	Tennessee	54.4	63.5
Louisiana	62.4	67.1	Texas	66.9	65.1
Maine	52.3	56.2	Utah	39.4	46.8
Maryland	50.1	55.7	Vermont	46.3	48.4
Massachusetts	39.0	39.9	Virginia	61.0	66.2
Michigan	41.5	44.6	Washington	36.7	38.7
Minnesota	35.4	38.8	West Virginia	54.5	62.3
Mississippi	57.2	56.7	Wisconsin	40.1	41.8
Missouri	44.9	51.5	Wyoming	43.7	51.8
Montana	48.7	45.5			

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Cleveland, Ohio, by the entire Board from Wednesday, May 28, to Monday, June 2, 1941, inclusive, prior to the opening of the annual meeting of the American Medical Association in Cleveland, Ohio.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1941.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

Candidates for *reexamination* in Part II must make written application to the Secretary's Office before April 15, 1941.

The Board requests that all prospective candidates who plan to submit applications in the near future request and use the new application form which has this year been inaugurated by the Board. The Secretary will be glad to furnish these forms upon request, together with information regarding Board requirements. Address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

EDUCATIONAL COMMITTEE

January Activities

SPEAKERS BUREAU

34 — Doctors were scheduled to address meetings of women's clubs, Parent Teacher Associations, Church Groups, Women's Auxiliaries, Rotary Clubs, Boys Clubs, B'nai B'rith, Catholic organizations.

Some of the topics presented in these lay discussions were:

"Health in the United States," "Child Health," "Middle Age," "Obesity," "Fads and Fancies in Medicine," "Cancer," "You and Your Doctor," "Maternal Welfare," "Heart Disease," "Mental Hygiene," "Medical Progress," "The Skin," "Diet & Vitamins."

RADIO

7 — Popular health talks were given over stations WJJD and WAAF in Chicago.

A new series of informal discussions between club women and doctors has been outlined by the wife of a physician in Chicago and will start, February 1st, station WAAF on Saturdays at 1:30. Why not listen in to these programs and let the Committee know how you like them, or send suggestions as to subjects you think your patients might like to hear discussed.

SCIENTIFIC SERVICE

28 — Doctors were scheduled to present scientific papers before the following county societies — Will-Grundy, Vermilion, Clinton, Beardstown Hospital, McDonough, Jersey-Greene, Champaign, St. Francis Hospital Peoria, Bureau, Lake, McLean,

Effingham, Alexander, Kankakee, DuPage, Stephenson, Knox, Rock Island, Tri-County, Saline, Edgar, Iroquois, Macoupin.

SPECIAL ACTIVITIES

650 — Notices mimeographed for director scientific exhibits.

266 — Letters written for director scientific exhibits.

6 — Letters written for director technical exhibits.

Special package libraries furnished debaters on Socialized Medicine. One was sent to a college student in Vermont at the request of her family doctor who lives in Chicago.

20 — Package libraries furnished doctors and club leaders. Representative of the Educational Committee and Secretary attended initial meeting of the Coordinating Committee for Child Health held in January, Chicago. Secretary attended meetings of the Conference on Association Publicity and the Cancer Committee of the Society.

A new supplemental list of speakers and subjects for scientific programs was mimeographed and sent to secretaries of county societies.

SPECIAL SERVICE TO COUNTY SOCIETIES:

Notices mimeographed inviting doctors to attend following meetings —

99 — Bureau County
303 — LaSalle County
140 — Franklin County
51 — Randolph County
73 — Effingham County
60 — Alexander County
220 — Peoria County
90 — Rock Island
83 — Clinton County
50 — Edgar County
125 — Saline County

LAY LIST:

8,584 — Articles to lay leaders throughout the state.

21 — New requests for this material came during the month of January. The following is typical of these letters —

"As Health Chairman of the - - - High School P.T.A. and the - - - Grade School P.T.A. I would like to know if it would be possible to have my name on your list to receive sufficient copies for all members attending the meetings of these two Parent Teacher Associations. We have an average attendance of 75. In case we do not have that many at meetings, don't think that the copies will be destroyed as I will turn them over to the High School Health teacher who said he would certainly appreciate getting them."

NEWSPAPER SERVICE:

424 — Health columns furnished regularly to downstate papers.

72 — Releases to Chicago papers

665 — "Do You Know" health columns to newspapers

50 — Releases about Bureau County
61 — " " LaSalle
25 — " " Franklin
11 — " " Randolph
4 — " " North Shore Branch
31 — " " Kankakee
8 — " " Alexander
24 — " " Saline
30 — " " Effingham
26 — " " Rock Island
53 — " " Peoria
37 — " " Clinton
16 — " " Edgar

Articles written and approved:

Are You Allergic
Influenza May Come Again
The Ace of Hearts
Physical Fitness
War Jitters
Foot Trouble
The "Worry Months"
Goiter
Lowering Appendicitis Mortality

Respectfully submitted,
Jean McArthur, Secretary

CLINICAL SECTION
CHICAGO HEART ASSOCIATION

Program presented by the Evanston Hospital to be held at

THORNE HALL, Superior Street and Lake Shore Drive

9-12 A.M. Thursday, February 20, 1941

Dr. Nathan S. Davis, III, Chairman Clinical Section
Dr. Lowell D. Snorf, Local Chairman

I 9:00 Acute Periocarditis with Effusion and Response to Chemotherapy. Case Report.
Dr. Jay M. Garner

Discussion 5 minutes

II 9:20 Sudden Fall in Blood Pressure as an Etiologic Factor in the Development of Coronary Thrombosis and Myocardial Infraction.
Dr. Walter S. Priest

Discussion 5 minutes

III 9:40 Hypertension Associated with Unilateral Renal Disease and Improvement with Unilateral Nephrectomy.
Dr. Ernest G. McEwen

Discussion 5 minutes

INTERMISSION

IV 10:10 Effect of Hesperidin on Capillary Frigility.
Dr. L. F. Jourdonais

Discussion 5 minutes

V 10:30 Cardiovascular System in Vitamin Deficiency
Dr. Don C. Sutton

Discussion 5 minutes

VI 11:00 Case Report Dr. William A. Brams

Discussion 5 minutes

Open Meeting All Physicians Welcome

IMPORTANT: This meeting will be held at *THORNE HALL!*

REJECTION OF ONE-THIRD OF THE MEN APPLYING FOR ARMY SERVICE

Rejection of one-third of the men applying for army service in the New York area is remediable by medical care only to a small extent, according to the January issue of the New York State Journal of Medicine.

"The defects for which men are being rejected by the army examiners," the Journal says, "are those structural and psychologic weaknesses upon which strenuous nature of field training could be expected to have a detrimental effect.

"The point of view of the army and of civilian medical examiners might be expected to vary considerably concerning the acceptability of certain risks and thus to account for the high percentage of rejections. They should not be taken too seriously even by constitutional pessimists. And, after all, what can be done for flat feet, bow legs, and perforated eardrums?"

Unfitness for medical service is not necessarily an index of health, according to the Journal, though "some of our socialist acquaintances start right away to yell louder for state medicine."

The Journal continues: "There is reason to believe that we are far healthier now than at the time of the last war. Tuberculosis, for instance, has declined as a cause of mortality 75 per cent more or less in the last twenty-five years, 'among men of draft ages insured in the industrial department of the Metropolitan Life Insurance Company.

"'At the draft ages the reduction in heart disease mortality has been 40 per cent for white and 60 per cent for colored men between 1911-15 and 1939. As an indication of health conditions at ages 25 to 44 the mortality of white policy holders has decreased by two-thirds — from 11.1 per 1,000 in 1911, to 3.6 in 1939. The most substantial contribution toward the reduction in the total mortality rates comes from the marked improvement in the death rate from tuberculosis. The death rates (from 1911 to 1939) per 100,000 fell from 509.0 to 61.8 for white males and from 277.1 to 40.6 for white females.

"'The mortality from syphilis, appendicitis has fallen markedly. The death rates for the group under review, per 100,000 for organic heart disease among white males, have dropped from 61.9 in 1929 to 50.2 in 1939; for cerebral hemorrhage from 12.0 to 10.6; and for chronic nephritis from 28.6 to 15.3.'"

Concluding the discussion, the official spokesman for the New York State Medical Society says: "As men are called for the draft, it is inevitable that there will be many rejected as physically disqualified. For years, physicians, educators, and many others have collaborated on a campaign urging periodic health examinations. Every facility has been offered which the ingenuity of man could devise to induce public cooperation in such a movement. If results have not equalled expectations, the system of providing medical care is not at fault so much as the impassable threshold of complete popular acceptance."

THIRTEENTH ANNIVERSARY NUMBER OF THE HAROFE HAIVRI

"The Hebrew Medical Journal"

The attention of the medical profession is directed to the appearance of a special issue of HAROFE HAIVRI (The Hebrew Medical Journal), a semi-annual publication, edited by Dr. Moses Einhorn. This volume commemorates the thirteenth anniversary of this journal and is dedicated to Prof. Sigmund Freud.

The founders had faith in the vitality and growth of modern Hebrew and foresaw that a Hebrew medical publication would be of inestimable value in the development and advancement of Hebrew medical literature; also, it has proved to be of particular service to the medical department of the Hebrew University in Jerusalem.

The contents of this Journal are not confined to technical medical topics, but are divided into several sections covering a variety of related subjects, such as Medicine in the Bible and Talmud, Old Hebrew Medical Manuscripts, Palestine and Health, etc. Among the contributors to the medical and editorial sections, have been such prominent physicians as I. S. Wechsler, A. Rongy, S. Solis-Cohen, B. Crohn, R. L. Kahn, J. Bullowa, D. Macht, etc.

In the section on Sigmund Freud, Dr. A. A. Brill presents a masterful exposition of "Freud's Metapsychology," and Dr. Philip Lehrman recounts much biographical detail and the story of Freud's earliest researches.

Another section of HAROFE HAIVRI presents from time to time mediaeval medical treatises, heretofore unpublished and interesting both from a historic and scientific viewpoint. In this volume a manuscript entitled "Hygiene of the Body" is included; it is written in verse by the famous Yehuda al-Charisi, who lived in Spain during the 12th Century.

Under the heading of "Personalia," biographical sketches of the foremost late physicians have been presented and their contributions to medicine reviewed, such as: Koplik, Frauenthal, Maurice Fishberg, Beer, Paul Ehrlich, Teschner, Jos. Goldberger, A. Jacobi, S. J. Meltzer, J. Solis-Cohen, Marcus Rothschild, Mendel, and others. In this issue a sketch of the life and work of the great medical figure, August Wassermann, is given.

In addition to an English-Hebrew medical dictionary, the original articles are summarized in English, to make them available to those who are unable to read Hebrew.

For further information, communicate with the editorial office of the HAROFE HAIVRI, 983 Park Avenue, New York City.

BEWARE OF TULAREMIA

Rabbit Fever is on the increase. A recent report of the Public Health Service shows that from 1930-1939, there were 1927 cases of Tularemia or rabbit fever in Illinois. The State of Ohio followed second with 900 cases and Missouri third with 827.

Tularemia is an acute infectious disease caused

by Bacterium tularense and occurs under natural conditions in over 20 kinds of wildlife, especially in wild rabbits and hares. Man becomes infected by contact of his bare hands with the raw flesh and blood of these animals or by bites of blood-sucking ticks and flies which have previously fed on animals infected with Bacterium tularense.

Tularemia symptoms include fever, chills, sweating, headache, vomiting, malaise and prostration. In the great majority of cases, a sore or ulcer marks the place of entrance of the infection. Because tularemia easily develops into a form of pneumonia, it is a very dangerous disease.

Anyone handling rabbits should wear rubber gloves. Freezing the meat does not kill the tularemia germs, but cooking does. One can therefore see the importance of cooking rabbit until it is thoroughly done.

INTERNATIONAL COLLEGE OF SURGEONS
TO MEET IN MEXICO CITY

The International College of Surgeons will hold its Fifth International Assembly in Mexico City, August 10-14, 1941, in response to the invitation of the Mexican Government. With the assembly will be scientific exhibits of the latest advances in surgery and commercial demonstrations of the newest equipment.

Surgeons in the United States desiring information about the presentation of papers or scientific exhibits are requested to query Dr. Desiderio Roman, Chairman of the Scientific Committee, 250 South 17th Street, Philadelphia. Those seeking travel information are advised to communicate with Dr. Max Thorek, International Executive Secretary, 850 West Irving Park Boulevard, Chicago.

Surgeons from other countries should address the member of the Scientific Committee nearest them. This includes: Dr. Manuel Manzanilla, Mexico City; Dr. Jose Arce, Buenos Aires; Dr. Oswaldo Campos, Rio de Janeiro; Dr. Rudolph Nissen, Istanbul, Turkey; Drs. Raffaele Paolucci and Mario Dogliotti, Italy; Dr. Felix Mandl, Jerusalem; Dr. Y. Seuderling, Helsinski, Finland; Dr. Arnold Jirasek, Prague; and Dr. J. C. McCracken, Shanghai.

ANNUAL MEETING

The Executive Board of the American Public Health Association announces the dates of the 70th Annual Meeting as October 14-17, 1941. The meeting place is Atlantic City, New Jersey. Headquarters for the meeting will be the Convention Hall. Residence headquarters will be the Hotel Traymore.

The 69th Annual Meeting held in Detroit in October, attracted an attendance of more than 3100 from all parts of the United States and also from Canada, Cuba and Mexico. The 70th Annual Meeting, it is expected, will bring together more than 3500 professional public health workers.

A New Jersey Committee responsible for entertainment, inspection trips and other local aspects of the meeting is being formed under the direction of Dr. S. L. Salasin, Health Officer of Atlantic City.

A number of related organizations habitually meet with the American Public Health Association. They will do so again at Atlantic City. Among them are the American School Health Association, the International Society of Medical Health Officers, the Association of Women in Public Health, the Conference of State Sanitary Engineers, the Conference of Municipal Public Health Engineers, and the Conference of State Provincial Public Health Laboratory Directors.

UNIVERSITY OF ILLINOIS
COLLEGE OF MEDICINE
CHICAGO, ILLINOIS

The CHARLES SUMNER BACON LECTURES for 1940-1941 will be delivered in the Medical and Dental College Laboratories Building, 1853 West Polk Street, Chicago, in Room 423, on February 12 and 13, 1941 by Dr. Henrik Dam, Biochemical Institute, University, Copenhagen.

Program

February 12, 1941, Wednesday, 1 P.M. —

"Vitamin K, Its General Significance in Biochemistry."

February 13, 1941, Thursday, 4 P.M. —

"Vitamin K, Its Role in Human Pathology and Its Application in Therapeutics."

HEADQUARTERS—108TH MEDICAL REGIMENT
1551 North Kedzie Avenue, Chicago, Illinois
MEDICAL OFFICERS DESIRED BY THE NATIONAL GUARD

The 108th Medical Regiment, Illinois National Guard, has been allocated additional Medical Department commissioned personnel.

According to present plans the Regiment will be sent to Tullahoma, Tennessee, probably about March 1st, for one year active duty.

Physicians interested, and who possess the following qualifications are invited to call at the Northwest Armory, Kedzie & North Avenue, for interview, preferably on Thursday evening, the present drill night, or to call Captain Carlson at any time at the Armory, Humboldt 7477, for further information.

QUALIFICATIONS

1. Graduate of Class "A" medical school
2. Possess a license to practice medicine in Illinois.
3. Capable of passing physical examination.
4. Resident of the State of Illinois.
5. 21 to 36 years of age (23 to 32 preferred).
6. Citizens of the United States.
7. Military qualifications of advantage but not required.

Successful candidates will receive commissions as First Lieutenants, Medical Corps in the National Guard of the United States. The pay of a First Lieutenant is $2,796 if single, and $3,152 with dependents.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY COUNTY NEWS

Sangamon County has been enjoying a most interesting fall and winter season. Their first meeting which was held in Sept. was devoted to the laying of plans for their activities during the coming year and a report of the National Convention. Mrs. M. E. Rolens is president and Mrs. Harry Otten and Mrs. J. Donovan are in charge of the Program. Dr. Conrad Sommer, Supt. Div. Mental Hospitals, Dept. of Public Welfare, was the guest speaker for the Oct. meeting. He spoke on, "Progress in our Mental Institutions." The Nov. meeting was devoted to the subject Cancer. Miss Mary Herrington, Acting State Commander of the Woman's Field Army for the Control of Cancer presented a sound picture. Dr. C. L. Patton spoke on the "Recent Advances in Cancer Therapy." Mrs. David Long of Harrisonville, Mo. Regional Director of the Women's Field Army also talked concerning this great work. The Dec. meeting consisted of a luncheon after which Mrs. Rex Campbell read a paper on "Dichromacy." The meeting adjourned to attend the State Public Health Conference to hear a talk on, "Sex Hygiene in High School," by Dr. Robt. S. Breakey. A review of Hygeia is a routine part of their monthly programs.

Peoria County. The general theme for the programs of this auxiliary is, "Know Better Peoria's Medical Centers." At the January meeting Mrs. Glan McClugage spoke on, "Maternal Welfare in Peoria." Mrs. O. E. Barbour is the President. Thirty-four were in attendance. Two new members were accepted. The Auxiliary's Aims are; 1. To interperate the aims of the Medical Profession to other organizations interested in the promotion of Health Education, and 2. To do any other work approved by the advisory committee of the Peoria Medical Soc.

Cook County.

The Stock Yards Branch was formerly inducted into the Chicago Auxiliary at the Evangelical Hospital, Jan. 14th. A rather extensive program was offered for this occasion. Those who took part as guest speakers were; Mrs. Harry J. Dooley, State President, Mrs. W. C. Bornemeier, County Pres., Mrs. Chas. Segal, Past County Pres., Mrs. A. F. Gareiss, First State Vice Pres., Mrs. W. J. Wanninger, Councilor 3rd Dist., and Mrs. John Soukup, Cook County Vice Pres.

The officers for this new Branch are; Mrs. Theodore Johnston, 2302 W. 35th St., Chicago; Vice Pres. Mrs. Julius Adler, 5700 S. Maplewod Ave., Chicago; Rec. Secy. Mrs. John Siedlinski, 4106 S. Francisco Ave., Chicago; Cor. Secy. Mrs. John Szukiewitcz, 6556 S. Talman Ave., Chicago; Treas. Mrs. J. H. Oneil, 7938 S. Hermitage Ave., Chicago; Councilor, Mrs. J. Patejdl, 1700 W. Garfield Blvd., Chicago; Alternate, Mrs. F. A. Barry. There were twenty-two charter members. The Drexel Mother's Chorusm in Colonial Costumes, furnished the music during the Tea. Mrs. H. C. Lewandowski and Mrs. Julius Alder poured.

CONVENTION REMINDER

Make your reservations early for the Annual Convention which will be held in Chicago, May 20th and 21st. The Palmer House will be headquarters for the Illinois State Medical Society and the Auxiliary thus all sessions for the Doctors and their Wives will be held in this hotel. Write to the Palmer House, Chicago, or Mrs. E. A. Christofferson, Convention Chairman, 630 N. Elmwood Ave., Oak Park, Ill.

—Mrs. C. W. Stuart,
Chairman, Press and Publicity.

COMING MEETINGS

The South Side Medical Assembly will hold its annual midwinter clinical meeting on Wednesday, February 19th, 1941. All members of the medical profession are cordially invited to attend this meeting.

SURGICAL CLINICS 8 A.M. — 11 A.M.

Chicago Memorial Hospital: Drs. Peter S. Clark, Chas. J. Drueck, A. H. Mason, John Van Prohaska, M. L. Weinstein, Horace Stimson, Richard E. Heller, Beatrice E. Tucker, Harry B. W. Benaron, Edward L. Compere, S. Perry Rogers, Irving Muskat, Vincent J. O'Conor, Glenway Nethercut, Herman P. Davidson, Arthur H. Conley, Emil C. Duval, Alfred Lewy, James B. McBean.

Mercy Hospital: Drs. Charles Sawyer, Michael P. McGuire, George D. J. Griffin, John A. Kelly, Louis D. Moorehead, William J. Pickett, Arkell M. Vaughn, J. F. McNamara, Clement L. Martin, Wayne Flora, Wm. T. Carlisle, Herbert Schmitz and Associates, Herbert Landes, John Ferrin, J. Burke, Joseph Laibe, Patrick McNulty, Harold Voris, Kenneth Penhale, John D. Claridge, Joseph Leonard, Joseph T. Coyle, George T. Jordan, Carl Christoph, Herbert Nash, Carl Schaub, Louis Hoffman.

Michael Reese Hospital: Drs. G. Kolischer, Irving Koll, Joseph Eisenstaedt, H. Rolnick, Alfred Jones, Irving Shapiro, Fredk. Lieberthal, J. Grove, J. E. Lackner, Jos. L. Baer, Wm. F. Rubovits, Irving F. Stein, Ralph A. Reis, A. A. Strauss and Sigfried Strauss, Ralph Bettman and Wm. Tannenbaum, James Patejdl, Morris L. Parker, Sam Goldberg, N. N. Crohn, S. Perlow, Philip Lewin, Daniel Levinthal and Irving Wolin, Sidney Sideman, Jerome Finder, Frank Glassman.

Provident Hospital: Drs. Ulysses G. Dailey, William W. Gibbs, Walter S. Grant.

Wesley Memorial Hospital: Drs. Earl O. Latimer, Guy Van Alstyne, Mark T. Goldstine, Martin J. DiCola, Rocco A. Masessa, William B. Campbell, Willard G. Jeffries, Milo Jeffries, Hampar Kelikian, Joseph E. Schaefer.

LUNCH: Will be served at 12 o'clock at the Shoreland Hotel.

SYMPOSIA: 2 P.M. — 5. P.M.

1. Intestinal Obstruction
   1. Edward Lewis, Conservative Management of acute Mechanical Ileus
   2. James Patejdl, Operative Treatment of Intestinal Obstruction
   3. Earl Latimer, Water and Salt Balance in Intestinal Obstruction
2. Diabetes
   1. Arthur Abt, Diabetes in Children
   2. Roy R. Jamieson, Diabetes in Adult
   3. Guy Van Alstyne, Diabetes in Surgery
3. Varicose Veins and Ulcers
   1. Robert E. Lee, Ambulatory Treatment of Varicose Veins
   2. G. de Takats, Surgical Diagnosis and Treatment of Varicose Veins
   3. Erwin P. Zeisler, Varicose Ulcers
4. Prostatic Hypertrophy
   1. James B. Merricks, Transurethral Resection of the Prostate
   2. Harry C. Rolnick, Perineal Resection of the Prostate
   3. Charles M. McKenna, Suprapubic Resection of the Prostate
5. Head Injuries
   1. Guy Cushing, Head Injuries without Fractures
   2. Harold Voris, Head Injuries with Fractures
   3. Lewis Pollock, Head Injuries from a Neurological Standpoint
6. Obstetrics
   1. Fred Falls, Toxemia of Pregnancy
   2. David Hillis, Accidents of the Third Trimester
   3. Edward Cornell, Breech Presentations and Version and Extraction
7. Blood Dyscrasias
   1. Raphael Isaacs, Lukemias
   2. Carroll L. Birch, Anaemia
8. Common Rectal Diseases
   1. Theo. F. Reuther, Anal Fissures
   2. Morris Parker, Fistula in Ano
   3. Guy V. Pontius, Hemorrhoids

DINNER: At 6:30 P.M. at the Shoreland Hotel

EVENING PROGRAM:

Sterility Studies in the Female, By Dr. James R. Bloss

COMMERCIAL EXHIBITS

SCIENTIFIC EXHIBITS

American College of Surgeons
University of Illinois
Medical History Society
Michael Reese Hospital
Municipal Tuberculosis Sanitarium
Northwestern University
Loyola University
Drs. Harold Voris and H. E. Landes

Warden: "What kind of exercise yould you like to take."

Condemned Man: "I like to skip the rope."

Sciatica and the Intervertebral Disk—Pennybacker's report is concerned with thirty consecutive cases of sciatica treated in the Nuffield Department of Surgery, Oxford, since May 1939. Since all the patients were operated on within the past nine months, it is too early to speak of ultimate results. The most dramatic relief was obtained in twenty-one cases of severe sciatica in which a loose fragment of prolapsed nucleus pulposus was removed. Most of the patients began to walk seventeen or eighteen days after operation, and although there was some soreness and stiffness of the back at first this improved rapidly with graduated exercise, and by the end of a month the patients were free from symptoms. Of the five patients who had herniation of the annulus fibrosus, two experienced immediate relief and had a painless convalescence. In three others, the results of operation were not satisfactory. The two patients with the cauda equina syndrome were completely free from pain after operation, but recovery of sphincter control and of the sensory and motor functions has been slow. Of the remaining cases, one was a negative exploration, but the patient has benefited considerably from the laminectomy; in the other, a fibro-angioma was removed from the intervertebral canal, but this has not completely relieved the pain. In no case has there been any aggravation of the symptoms or neurologic signs after operation. It appears that operation is advisable in three groups of patients: (1) in cases of acute sciatica which send the patient to bed and in which, despite adequate rest for from five to six weeks, the severe pain persists; (2) in frequently recurring attacks, which may be severe enough to send the patient to bed or to make his life a misery for three or four weeks every year; (3) in some cases of chronic continuous sciatica due to a prolapsed nuleus pulposus, in which the results of operation are no less satisfactory than in the acute an dsevere cases. But others in this group wil be due to a herniated annulus fibrosus, and the results in these have not been as uniformly satisfactory as in those due to prolapse of the nucleus pulposus. Until it is possible to differentiate these varieties by the history and examination, or by myelography, some doubt must remain about the value of operation.—J.A.M.A.

An Irishman's description of influenza: "Faith, it's a disease that makes ye feel sick tin weeks after ye's well.—*Methodist Protestant Recorder.*

Our idea of sweet revenge is a chiropractor giving an adjustment to the dentist who pulled the wrong tooth for him.—Tile and Till.

CHEERIO!

"An optimist laughs to forget; a pessimist forgets to laugh."

Diner: "I see tips are forbidden here."

Waitress: "Lor bess yer, Mum, so was the apples in the Garden of Eden."

Roentgen Therapy and Ovarian Physiology—Rock and his co-workers used subcastrative doses of x-rays over the ovaries and pituitary in the treatment of twenty-seven patients with menstrual disorders with or without sterility. Twenty-two had proved anovulatory flow or flow which was predominantly anovulatory with occasional ovulatory cycles. No endometrium was obtained on repeated efforts from one woman, and this was presumed to be an instance of primary pituitary deficiency. Five patients had cyclic ovulation but with associated disturbances: sterility, polymenorrhea or hypermenorrhea. None of these five patients was relieved or cured. Twelve of the patients with faulty ovulation were cured, and the treatment of ten resulted in failure. If an ovulatory cycle could not be proved within three months after the completion of roentgen therapy the case was considered a failure. Patients considered cured were those in whom biopsies demonstrated ovulatory cycles three months or more after roentgen therapy, those of sterility in which pregnancy proved ovulation or those who acquired after treatment the molimina of menstruation with periodicity of characteristic flow. Three, or 13 ⅓ per cent, of the patients became pregnant. The figures of cure are well above the most optimistic results reported from endocrine treatment alone. Many of the cured women were under endocrine treatment before roentgen therapy was tried. Regular ovulatory cycles began within from two to ten weeks following the first roentgen treatment. No apparent harm resulted when a subsequent series of treatments with the same dosage was given after an interval of from two or three months. Three doses, each from 50 to 60 roentgens, given over the ovaries seem harmless to the ovaries of women less than 35 years of age. Women older than this may suffer temporary or permanent cessation of follicular function. The authors believe that roentgen treatment of the pituitary offers no additional benefit. To explain the good results, they postulate a destruction by x-rays of persisting mature follicles, thus allowing a new cycle of follicle development and maturation to take place.—J.A.M.A.

Surgical Treatment of Pancreatic Cysts—Kafka describes two cases of pancreatic cyst. A woman aged 58 with a pseudocyst was treated by means of a primary pancreato-cystogastrostomy. The healing tendency seemed favorable, but the patient succumbed to a sudden hemorrhage into the intestinal tract on the ninth day after the operation. The second patient was a woman aged 56 with a pseudocyst. The first intervention resulted in a fistula and a cavity in the pancreas A subsequent pancreatocystojejunostomy resulted in a complete cure. The author reviews the various surgical methods and evaluates the various types of anastomosis. These operations were palliative and were regarded free from danger. The fatal outcome in one of the author's cases demonstrated the possibility of complications cyst with the intestinal tract. The author advises which may arise from the anastomosis of a pancreatic against a primary anastomosis of the cyst, particularly with the stomach. Such an intervention would be permissible only in the form of Jedlička's operation; that is, a lateral pancreatogastrostomy with external drainage of the residual cavity. Otherwise, marsupialization is to be preferred. A persistent fistula may be anastomosed with the gastrointestinal tract. If x-ray examination or laparotomy reveals, in addition, a residual cavity, it may be treated by a wide cystenterostomy, in which the danger of obliteration of the stoma does not exist to the same extent as in the presence of a simple anastomosis of the fistula with the digestive tract. —I.A.M.A.

LONG SURVIVAL FOLLOWING CORONARY THROMBOSIS

Drake reports the survival of a man (a telegrapher) for nearly forty years after coronary thrombosis. He was first seen by Drake at the age of 72, seven years before death, when he had suffered from angina for five years. The patient stated that he had experienced the same pain at the age of 40, except that at this time the pain was more severe and that it had gradually increased in intensity, came at more frequent intervals and was more easily precipitated. This state continued for several weeks, but since then the pain had not returned for twenty-seven years. At an examination in 1933 hypertension and cardiac enlargement were present. In 1935 the patient suffered a coronary thrombosis from which recovery was uneventful except for a complicating attack of arthritis. Following this he continued to have infrequent attacks of mild angina pectoris easily relieved by glyceryl trinitrate. At the age of 77 he retired. In 1938 another coronary thrombosis occurred. This attack was severe, was accompanied by marked pulmonary edema and was followed by frequent severe recurrences of pain and by cerebral embolism and left hemiplegia. He was confined to bed for four months. Infrequent attacks of angina pectoris continued. Prostatic hypertrophy, which caused nocturia, developed and unless he voided promptly on awakening an attack of angina pectoris would result. Because he feared the cardiac pain he occasionally took glyceryl trinitrate at these times to forestall an attack. On Oct. 2, 1939 he awakened with a desire to void and experienced an attack of angina pectoris which was not relieved by glyceryl trinitrate. A hypodermic injection of morphine was ordered; a half hour later he was unconscious and died within a few minutes. The body was embalmed before permission for necropsy was obtained and therefore the heart was considered unsuitable for injection studies. The heart weighed only 360 Gm. Old obstructions, with calcification, were found in the left anterior descending branch, a large branch of the left circumflex and the right circumflex artery. There were three fair-sized areas of fibrosis in the ventricular walls; the most recent one was in the posterior basal portion of the left ventricle. There was no fresh coronary thrombosis to explain the fatal attack. It seems certain that one of the three scars resulted from the myocardial infarction suffered at the age of 40. It seems that certain middle-aged patients may recover completely from coronary thrombosis and live out their span of life.

Original Articles

PNEUMONIA — ITS DIAGNOSIS AND TREATMENT

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PNEUMONIA DIAGNOSIS AS IT RELATES TO CHEMOTHERAPY. The diagnosis of pneumonia is so closely related to the treatment of the disease that the outline of present diagnostic practice and terminology from the point of view of therapy, is an appropriate part of the discussion of specific pneumonia therapy. A few fundamental characteristics are common to all cases of pneumonia, such as the acuteness of the disease, inflammatory reactions which lead to greater or smaller areas of consolidation, and the commonly associated bacterial infection of the lung. At this time, when chemotherapy with sulfonamide compounds is being found effective to some degree against many, if not all of the etiological agents commonly found in pneumonia, the possibility of stopping the further progress of all infections of the lung by prompt administration of sulfapyridine following diagnosis by the simplest means, such as history and physical signs, has occurred to many physicians. Chemotherapy as applied to pneumonia has become established so recently that the possibility of such a comprehensive application cannot be denied. Our knowledge of the disease has shown up to this time, however, that pneumonia is not a single entity when thoroughly considered from the standpoint of its pathological characteristics, its bacteriological characteristics and its clinical manifestations. It is necessary to determine the effectiveness of a chemotherapeutic agent against each of the many varieties of the disease, before we can be sure that all infections of the lung are favorably influenced by such chemotherapy. For the present, it is necessary to use enough diagnostic methods to thoroughly describe each case, in order that the experience may be of value in pointing out the circumstances under which chemotherapeutic agents are best used, and to find such circumstances as there may be under which they are of less value.

Read before the General Session, Centennial meeting, Illinois State Medical Society, Peoria, May 22, 1940.

Lobar pneumonia has been described as a distinct pathological entity and it is generally recognized by pathologists. Classification of cases other than typical lobar pneumonias has not been so successful. The common practice is to use one term, usually "broncho" pneumonia, to indicate any one of the heterogenous collection of pathological pictures which belong together only on the basis that they differ from typical "lobar" pneumonia.

Classification based on the presence of bacteria in the pulmonary exudate which are thought to have an etiological relationship to the disease has been somewhat more successful than classification based on pathological findings because it can be applied during life to a larger proportion of the existing cases, including some of the variable "broncho" pneumonias. The pneumococcus pneumonias as a group are the most numerous, but they are divided into types numbered from 1 to 33 and further yet unreported groups of pneumococcus strains that have individual immunological characteristics; and other microorganisms, such as Hemolytic Streptococci, Friedlander baccili, Staphylococci may also be associated with pneumonia. A group of patients without demonstrable bacteriological cause is small, but persists in even the most carefully studied series.

As will be seen below, reports of fatality rates for etiological varieties of pneumonia treated with sulfapyridine are lower than the average fatality rates for the disease, and the desirability of using sulfapyridine in pneumonia caused by many different etiological agents is thus apparent although further study of the rarer microorganisms is needed.

Some observations have been made, however, pointing to the existence of a small number of infections by pneumococci that are resistant to chemotherapy. Pneumococcus cultures from 3 patients who had unsatisfactory therapeutic effects from the use of sulfapyridine, showed a striking degree of resistance to the bacteriostatic action of sulfapyridine in solid media. No such resistant strains have been found among microorganisms obtained from patients reacting favorably to the administration of the sulfonamide drugs. The recognition of such "fastness" of pneumococci to the action of sulfonamide drugs may become an aid in bacteriological diagnosis

and play a role in guiding treatment, since such strains retain their susceptibility to type specific serum.

Other groups of cases that do not respond to chemotherapy have been described by several observers. Kneeland and Reimann have separately reported small groups of patients that were severely ill and had large areas of consolidation for which none of the usual etiological agents could be identified, and in which filterable virus etiology was suspected. These cases showed no therapeutic effect when treated with sulfapyridine. Charles Hendee Smith has reported that certain pneumonias in infants and children, of unknown etiology, classified as "broncho" pneumonia in his clinic do not respond to chemotherapy.

The routine recognition of the type specific pneumococcus or other etiological agent in pneumonia does not appear to have a direct bearing on the treatment of the majority of patients receiving chemotherapy, although further studies of many of the rarer microorganisms are needed in order to be sure of this point. The value of the bacteriological procedures may be summarzied as follows:

1. The recognition of pneumonia is made more certain and specific by finding one of the more frequent pneumococcus types or a pure culture of any organism in sputum, in the blood or in pus from infected exudates; 2. the recognition of the presence, degree and specific cause of bacteremia in pneumonia is a valuable prognostic aid; 3. the presence of sulfapyridine-fast organisms in cases that do not respond to chemotherapy may lead to the effective use of other therapy; 4. the recognition of cases which are not due to one of the usual etiological agents may be correlated with lack of therapeutic response; and 5. the recognition of type specific pneumococci is essential to the use of type specific serum therapy in cases for which serum is required.

Every practicing physician realizes that there are many patients who have what appears to be an acute inflammatory reaction in the lung with fever or other evidences of infection that cannot be further classified. The importance of one large group of such cases is demonstrated by the accompanying tabulation of deaths attributed to pneumonia, reported to the New York City Pneumonia Control Division during 1937 (table 1). Pneumonias, unassociated with other disease, numbered 6,504. Slightly more than one-half were called "lobar" pneumonia, and slightly less than one-half were called "broncho" pneumonia. Four thousand nine hundred and six other patients (in table 2) were said to have pneumonia associated with a second disease of equal or greater significance. Only 535 of these secondary pneumonias were called "lobar," and 4,371 were called "broncho" pneumonias. It is in the large group of secondary "broncho" pneumonias that classification is especially difficult. Indeed, it is sometimes difficult to make reasonably certain that an acutely developing infected exudate is present because of the simultaneous presence of other exudate in the lung. Bacteriological examination of the sputum may show several different bacteria that are normally found in the upper respiratory tract. Pathological studies indicate, however, that such pneumonias are often recognized during life by the usual methods of examination. A practical measure for grouping such secondary pneumonias is to place them together according to the disease or condition with which they are associated. The common term "postoperative" pneumonia is an example of such terminology.

Another group of acute cases that are not easily classified are the mild respiratory infections which run the course usually called "flu" or "grippe," in which pulmonary changes, although frequently present, may be so slight or evanescent that repeated x-rays are required for their demonstration. No adequate figures on the incidence of such mild pneumonias have been prepared and their possible relationship to the cases with more severe symptoms has not been determined. Bacteriological diagnosis is sometimes possible when typical sputum is available, but more often it is not. Since the reliability of sputum bacteriological diagnosis in the diagnosis of pneumonia has been worked out only by studies in severe cases that offered postmortem material, positive blood cultures, or pus from infected exudates for comparison, the etiological significance of organisms obtained from mouth or sputum cultures in such mild cases of the disease may be called in question.

It can be seen from this résumé that a substantial minority of pneumonia cases, as they come to the attention of the physician are not to be easily described in pathological or bacterio-

logical terms. The recognition of all these conditions is important, however, and it has become more important since the advent of chemotherapy which may, from the studies conducted in the past two years, be applicable to nearly all pneumonias. It is suggested that a scheme of classification, such as the following be used, combining what is useful from pathological, from bacteriological and from clinical studies:

PNEUMONIA DIAGNOSIS AND CLASSIFICATION

Pneumonia is an acute infection of the lung, producing inflammatory exudate in the parenchyma of the lung, which may be recognized by history, physical signs, x-ray and bacteriological examination. Cases may be classified as follows:

1. Lobar pneumonia or bronchopneumonia (any case without characteristic features or lobar pneumonia). State number of lobes involved.

2. Bacteriological etiological agent or agents; state whether bacteremia is present, absent or unknown.

3. Other co-existing disease.

The primary question as to the extent of the usefulness of sulfonamide drugs depends upon observation of therapeutic effects in all kinds of pneumonias and it is recommended, now that many studies have been made of pneumonias that may be most easily classified, that some attention be paid to these other less easily classified cases. Such studies are a necessary first step in arriving at the point where sulfonamide drugs may be considered the therapy of choice for all patients in which pneumonia is diagnosed as the result of history, and physical examination alone.

THE FATALITY RATE OF PNEUMONIA TREATED WITH SULFAPYRIDINE

During the past three years, since the publication of the report of Evans and Gaisford, many similar studies of the effectiveness of sulfapyridine in the treatment of pneumonia have been carried out and a summary may now be made. I do not wish to exaggerate with regard to the finality or the preciseness of the information to be gained by summarizing these papers. The comparison of fatality rates in series of treated cases reported by many different physicians is not a precise method of study. The answers to certain questions, however, are best obtained in this way:

1. Does sulfapyridine decrease the fatality rate of pneumonia?

2. Does sulfapyridine produce an effect on the fatality rate of pneumonia complicated by bacteremia?

3. Does sulfapyridine produce an effect on the fatality rate of pneumonias of various etiology?

4. Does sulfapyridine produce effects on the fatality rate of pneumonia in patients of different ages?

5. How does sulfapyridine compare with serum therapy in its effect on the fatality rate of pneumonia?

It is believed that answers to these questions are to be obtained by reviewing and summarizing the reported studies, grouping together such studies as have been carried out along similar lines. Conclusions are valid if suitable qualifications are made. One may say that physicians have usually studied series of cases that came within the scope of easy classification; that is, all primary lobar pneumonia, including a variable proportion of primary bronchopneumonias, (usually those for whom significant bacteriological results may be obtained) with a tendency to emphasize the more severely ill cases which are readily recognizable without the aid of the roentgen ray.

The striking reduction of the fatality rates in series of pneumonia patients treated with sulfapyridine as the only curative agent, is now common knowledge. This is best illustrated by studies in which approximately half of each series of patients admitted to an institution during a given period, were impartially selected to be given sulfapyridine, either by the alternating case method, or by their admission to separate but similar divisions of the hospital; and the other half were treated symptomatically, without sulfapyridine or other therapeutic agents thought to have a curative action. Fatality rates for adults are thus obtained (table 3) of 4.6%, or 21 deaths in 455 sulfonamide drug cases as compared with 13.6%, or 58 deaths in 425 cases that received no sulfapyridine. The reduction in fatality rate is 66.2% of the fatality rate among the controls. Similar smaller scale studies have been carried out for pneumonia in children, with even more striking results, as

shown in the same table. In view of the opinion occasionally held, that low fatality rates and mortality rates from pneumonia reported during the past two seasons may be due to an accentuation of the long term downward trend of pneumonia mortality from general causes, it is fortunate that adequately controlled data, showing striking reductions in the fatality rate of comparable groups of cases, are available.

When the total of sulfapyridine-treated cases reported in the literature to May 1, 1940, is summarized (table 4) a fatality rate of 7.7%, or 382 deaths in 4,931 cases is obtained. This summary includes all series of ten or more patients, which appeared to constitute the whole experience of the author at a given time and place, usually in hospital practice. Certain irregularities, such as the inclusion of relatively small numbers of children under 12 years, with adults or of relatively small numbers of patients receiving serum treatment, without separate discussion which were thought to be without significance, by the authors have not been corrected.

A summary of sulfapyridine-treated cases for whom blood cultures were performed is also given in table 4. Patients with blood invasion, if untreated, are known to have case fatality rates of from 40% to 90%. A fatality rate of 24.8% or 82 deaths in 330 bacteremic patients is good evidence of the life-saving effects of sulfapyridine. The 15.7% incidence of bacteremia, or 330 bacteremic cases among 2,393 cases for which blood cultures were routinely carried out, is somewhat lower than that often reported. It would appear that the average severity of the pneumonia cases reported as treated with sulfapyridine may be less than the average severity of many larger series reported in the past.

Two sources of uncertainty with regard to the bacteremia incidence should be mentioned. The authors often failed to state specifically that performed, but usually stated that "routine" blood cultures were performed. It is also possible, since the point was usually not discussed, every patient in the series had a blood culture that blood cultures were made in many cases only after treatment had been begun, when organisms originally present in the blood were no longer demonstrable, due to the presence of drugs in the blood. Only one series was found, in which all patients had blood cultures before treatment, and the experiences of other years were available for comparison. Wood and Long of Johns Hopkins Hospital found that when cases seen in years before sulfapyridine became available were compared with the series of cases seen after sulfapyridine became available, the two series showed a similar proportion of cases with positive blood cultures, provided only those blood cultures taken on admission to the hospital, were considered. The disease as treated with sulfapyridine appears to have been of the same average severity as in previous years in this series, and the therapeutic effects of sulfapyridine treatment were excellent.

The next table, table 5, shows the low fatality rate of sulfapyridine-treated pneumonia patients classified as to etiological agents. The strikingly uniform results, especially since they include type 3 cases hitherto not treated specifically with serum, are worthy of special note.

The favorable effects of chemotherapy are apparent in all age groups. Sulfapyridine cases reported to the Pneumonia Control Division of the New York City Department of Health have been classified according to age in the accompanying table (6), showing a maximum of 14% mortality, in children under two years of age. The differentiation according to age appears to be particularly important as it affects infants and children. The next table (7) shows the results in a total of 1,665 children reported in the literature, most of whom were not clearly described as to age, and for comparison the differing fatality rates; 4.1% in children two years of age or less and 1.2% in children from three to 12 years of age inclusive, where such a differentiation was made.

Comparisons have been made by a number of workers between the fatality rates resulting from sulfapyridine used alone, the fatality rates resulting from type specific serum therapy used alone, and the fatality rates resulting from sulfapyridine and serum therapy used together. These comparisons have not usually been made by means of series chosen in an impartial manner. The number of cases so reported is now considerable, and because blood cultures have been carried out routinely in these series, they may be discussed on the basis of the average severity of each group determined from the incidence of bacteremia. The first comparisons were made between sulfapyridine-treated cases

and serum-treated cases (table 8). Here it can be seen that the fatality rates are near 10% for both types of therapy. The incidence of bacteremia was similar — approximately 20% — in patients receiving each kind of therapy. The fatality rate of 23.7% in bacteremic sulfapyridine-treated cases was somewhat lower than the fatality rate of 31.1% in the bacteremic serum-treated cases. The similarity of the results from the use of the two different kinds of therapy is striking.

It has been thought by certain investigators, largely as a result of animal experimentation, that sulfapyridine treatment and serum treatment used together, would produce even more favorable results than either used alone. This has not proven to be the case in practice, and a few reports of small numbers of cases have indicated that the combined therapy was associated with a higher fatality rate than the use of sufapyridine alone. This may have been due to the lack of impartial selection of cases and because of the small numbers involved.

A larger experience in which all three methods are compared is shown in table 9. The fatality rate in cases treated with either sulfaypridine or serum alone was approximately 11%, although the proportion of bacteremic cases in the serum-treated series was higher than that in the sulfapyridine-treated series. Sulfapyridine and serum were used together in cases with a much higher incidence of bacteremia than where either was used alone in the hope that the combination would produce more striking results than either therapy alone. A satisfactory result was obtained, as indicated by the fatality rate of 18.4% for the whole series, but the fatality rate in the bacteremic cases treated with both agents was somewhat higher than the fatality rates of cases treated with either sulfapyridine or serum therapy alone.

This summary of the comparisons of the three possible variations in the routine use of sulfapyridine and serum therapy, published to May 1, 1940, shows that the fatality rates from the use of sulfapyridine or serum alone are similar, but that the combination of the two must be studied further before its superiority is clearly demonstrated.

The extent to which sulfapyridine has been applied to pneumonia has been described, and in addition its favorable effects on the fatality rate of the disease have been described when pneumonia is due to many different bacteria; in patients of all ages; and in cases of all degrees of severity, as indicated by its effect in the presence of bacteremia. It is pointed out that sulfapyridine has a favorable effect on all patients found to have a pneumonia that is readily recognizable and classifiable, with the exception of a few cases where sulfapyridine-fast microorganisms have been noted, or where thorough bacteriological studies have demonstrated none of the usual etiological agents. Other information in published reports is not so suitable for summarization, such as the striking symptomatic effects on the disease; the studies of pneumonia deaths occurring in sulfapyridine-treated series; the lack of striking effect in purulent complications of pneumonia and endocarditis, the variability of blood concentration following oral administration, which makes thoroughly rational dosage difficult, the use of sodium sulfapyridine intravenously or by other routes, and the toxic reactions. These subjects are better discussed by illustrations drawn from carefully studied small series of patients. The newer drugs, of which sulfathiazole has now been released for use by the United States Food and Drug Administration, will also require separate consideration.

At the present time curative therapy in pneumonia is best undertaken with sulfapyridine or sulfathiazole due to their striking therapeutic effects, their low cost and their convenience. Thorough diagnosis is of great importance as a prerequisite for treatment, in order to recognize the presence of pneumonia and to classify it. Favorable effects of the application of sulfapyridine therapy in secondary bronchopneumonias as a group, mild cases of the disease as a group, and respiratory diseases other than pneumonia have not yet been reported. The toxic effects of sulfapyridine and sulfathiazole are such that their use without a clear-cut indication is not warranted. Serum therapy is available, provided bacteriological studies are promptly made, for patients with serious toxic effects from chemotherapeutic agents and for those that do not respond favorably, in a reasonable length of time, such as 24 to 48 hours.

TABLE 1

PNEUMONIA — PRIMARY CAUSE OF DEATH IN VARIOUS AGE GROUPS, NEW YORK CITY, 1937

Age group	Broncho	Lobar	Total
Under 1 year	668	161	829
1- 4 years	177	187	364
5-19 years	70	163	233
20-39 years	186	561	747
40-59 years	547	1,255	1,802
60 years and over	1,362	1,167	2,529
All ages	3,010	3,494	6,504

TABLE 2

PNEUMONIA — SECONDARY CAUSE OF DEATH IN VARIOUS AGE GROUPS, NEW YORK CITY, 1937

Age group	Broncho	Lobar	Total
Under 1 year	386	24	410
1- 4 years	115	14	129
5-19 years	103	21	124
20-39 years	298	93	391
40-59 years	1,059	214	1,273
60 years and over	2,410	169	2,579
All ages	4,371	535	4,906

TABLE 3

FATALITY RATES OF SULFAPYRIDINE-TREATED PNEUMONIA CASES COMPARED WITH CASES RECEIVING NO CHEMOTHERAPY AND NO SERUM THERAPY. SUMMARY OF REPORTS IN THE LITERATURE TO MAY 1, 1940

	Sulfapyridine treatment			No Sulfapyridine treatment		
	No. of cases	No. died	Per cent died	No. of cases	No. died	Per cent died
Adults	455	21	4.6	425	58	13.6
Children	176	2	1.1	182	13	7.1

TABLE 4

FATALITY RATE AND BACTEREMIA RATE OF ADULT SULFAPYRIDINE-TREATED PNEUMONIA CASES REPORTED IN THE LITERATURE TO MAY 1, 1940.

FATALITY RATE

	No. of Cases	No. died	Per cent. died
Total cases	4,931	382	7.7
Bacteremic cases	330	82	24.8

BACTEREMIA RATE

	No. of cases	No. with bacteremia	Per cent. with bacteremia
Cases on which blood cultures were taken	2,393	330	13.7

TABLE 5

SULFAPYRIDINE-TREATED PNEUMONIA CASES CLASSIFIED ACCORDING TO BACTERIOLOGICAL DIAGNOSIS, FROM REPORTS IN LITERATURE TO MAY 1, 1940.

Bacteriological diagnosis	Number of cases	Number died	Per cent. died
Pneumococcus Type 1	807	40	4.9
Pneumococcus Type 2	336	18	5.4
Pneumococcus Type 3	560	60	10.7
Pneumococcus Type 4	137	10	7.3
Pneumococcus Type 5	175	7	4.0
Pneumococcus Type 6	73	3	4.1
Pneumococcus Type 7	224	7	3.1
Pneumococcus Type 8	164	10	6.1
Pneumococcus Type 14	76	6	7.9
Pneumococcus Type 19	63	7	11.1
Other pneumococcus types	484	48	9.9
Total pneumococci	3,099	216	6.9
Other microorganisms	131	12	9.1
More than one microorganism	48	6	12.4
Bacteriological examinations not done, or unsuccessful	774	21	2.7
Total cases	4,052	255	6.3

TABLE 6

FATALITY RATES ACCORDING TO AGE OF SULFAPYRIDINE-TREATED CASES REPORTED TO THE NEW YORK CITY DEPARTMENT OF HEALTH (TO NOVEMBER 30, 1939).

Age group	No. of cases	No. died	Per cent. died
Less than 2 years	14	2	14.3
2 to 12 years	87	0	0
13 to 19 years	51	0	0
20 to 39 years	146	6	4.1
Over 40 years	281	25	8.8
Age unknown	20	1	5.0
Total	599	34	5.7

TABLE 7

FATALITY RATE OF PENUMONIA IN CHILDREN TREATED WITH SULFAPYRIDINE, FROM REPORTS IN THE LITERATURE TO MAY 1, 1940.

	Number of cases	Number died	Per cent. died
Ages — 0 to 12 years (30 reports)	1,665	61	3.7
Ages — 0 to 2 years (4 reports)	188	8	4.1
Ages — 3 to 12 years (4 reports)	165	2	1.2

TABLE 8

COMPARISON OF RESULTS OF SULFAPYRIDINE TREATMENT WITH RESULTS OF SERUM TREATMENT, FROM REPORTS IN THE LITERATURE TO MAY 1, 1940.

	Sulfapyridine-treated cases		Serum-treated cases	
	Number	Per cent.	Number	Per cent.
Total cases	584		802	
Cases died	62	10.6	88	10.9
Cases on which blood cultures were taken	575		799	
Bacteremic cases	122	21.2	151	18.8
Bacteremic cases died	29	23.7	47	31.1

TABLE 9
COMPARISON OF RESULTS OF SULFAPYRIDINE TREATMENT WITH SERUM TREATMENT, AND WITH COMBINED SULFAPYRIDINE AND SERUM TREATMENT FROM REPORTS IN THE LITERATURE TO MAY 1, 1940.

	Sulfapyridine-treated cases		Serum-treated cases		Sulfapyridine and Serum-treated cases	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Total cases	718		322		271	
Cases died	83	11.5	35	10.8	50	18.4
Cases on which blood cultures were taken	718		322		271	
Bacteremic cases	96	13.3	72	22.3	107	39.4
Bacteremic cases died	27	28.1	21	29.1	38	35.5

THE NEED FOR AND ORGANIZATION OF POSTGRADUATE MEDICAL EDUCATION AS A PART OF A STATE EDUCATIONAL PROGRAM

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To a group like this, the need for postgraduate medical education is perfectly obvious. But at the turn of the century it was not so clear. Teachers of obstetrics, specialists, health authorities and people interested in public welfare suspected that too many mothers and babies were dying as a consequence of pregnancy and birth. However, there existed little recorded data to prove it; there was no national registration of births. Some states required adequate records, but it was not until 1915 that the so-called "Registration area" was established in the Census Bureau.

When the statistics of the census revealed the true consequences of childbirth, suspicion turned to conviction that child-bearing was followed by too many deaths and too much morbidity, and that something must be done about it. But what?

By 1920 the census reports revealed a sorry picture; 15,000 mothers were dying every year, to say nothing of the sad trail of morbidity. More than 75,000 babies born alive died before they were a month old, and another 80,000 were stillborn. These 160,000 deaths of mothers and babies (not including the 70,000 estimated abortions) soon, even if slowly, aroused professional and lay opinion to the realization that the obstetrics practice in the early 1920's was at a low ebb. This conviction was further strengthened when subsequent investigation revealed that more than half of the deaths were preventable.

At this time the rapidly falling birth rate added to the gravity of the situation, so much so that the 30 per cent. decrease in the birth rate rendered solution of the question not only medical but also a great economic problem. Statisticians saw in it a real threat to population growth. There are only three factors governing population increase: births, deaths and immigration. In as much as immigration has all but disappeared, it is obvious that the hope of population growth lies in the excess of births over deaths. When deaths exceed births economic disaster impends. Expert economists and statisticians, long since, voiced alarm at the prospect of decreasing population.

Now it should be made evident to all by the decreased school poulation in the lower grades all over the country, which is an economic misfortune and evidence of a decadent tendency. In the face of a decreased number of conceptions, a death rate stable for two decades, the disappearance of immigration, only one factor is left to counteract the decreased birth rate; namely, the preservation to maturity of every conception that does occur and the birth of a healthy uninjured baby. It seems a unique situation that the chief danger to population growth and our national life should be almost solely dependent on the proper practice of obstetrics and the after-care of the baby.

It has been thoroughly and convincingly demonstrated by the leaders in our specialty that clear-headed, dextrous and conservative obstetrics will save for future citizenship a majority

Read before Section on Obstetrics and Gynecology, Illinois State Medical Society, May 21, 1940, Peoria.

of the babies who now perish. Furthermore, public welfare demands that the known, thoroughly demonstrated life-saving measures be employed throughout the country to the end that infant lives may be saved, not only as babies in the home but also as future citizens, whose social importance is emphasized by their decreasing numbers.

And how is this to be accomplished? By opportunities for better education of physicians and education of the public.

1. BY BETTER UNDERGRADUATE TEACHING

It is self-evident that if the young physician is to enter the practice of medicine and grow more competent by experience, he must at graduation be thoroughly grounded in the fundamentals of obstetrics. I believe we can safely assert that the teaching of obstetrics in the medical schools is steadily improving and that more schools are giving adequate instruction.

2. EDUCATION OF THE PUBLIC, PARTICULARLY OF EXPECTANT MOTHERS

a. By general publicity regarding the necessity of competent obstetric care.

b. By mothers' classes giving personal instruction or by correspondence.

c. By every physician spreading the "gospel of good obstetrics" by careful instruction of his pregnant patients.

3. POSTGRADUATE EDUCATION OF THE PHYSICIAN

I have been asked by your committee to discuss this last subject particularly and to tell about our efforts in Minnesota, which I do without any thought of setting it up as the ideal plan. Our plans have varied and in a great measure have paralleled those of many other states during the last decade. In as much as approximately 80 per cent. of pregnant women are attended by general practitioners, it is obvious that postgraduate education is a very important factor.

During the first fifteen years, after 1915, efforts to reduce maternal and new-born mortality were more or less sporadic, coming largely from volunteer and official public health agencies, like the Child Health Association and state boards of health. Out of these sporadic but idealistic attempts have grown a great movement for maternal and child welfare.

One of the most notable influences in this movement has been the organization, under the leadership of Dr. Fred L. Adair, of maternal welfare committees in each state, unified and coordinated into a great force by the American Committee on Maternal Welfare, Incorporated, of which Dr. Adair is chairman. The work of this committee has been largely educational, both professional and public. One of its greatest accomplishments has been that of drawing into the movement all agencies interested in maternal and child welfare.

By 1930 the medical profession became definitely interested in a program of education of physicians by physicians, with or without assistance of public health agencies, which became a definite part of medical philosophy and teaching.

Physicians were found very receptive; they desired opportunities for refreshing their knowledge and adding the newer advancements in obstetrics. The earlier efforts consisted of sending out volunteer speakers, singly or in groups, to county societies. Traveling expenses might be paid, but other compensation seldom. Later the attempts became a little more systematized with a specific program offered by public health agencies with the assistance of organized medicine. Expenses were paid together with an honorarium. In some states a single man or a pair, usually an obstetrician and a pediatrician, were employed to give instruction following a definite circuit through the state. They were also available for lay health talks and consultations with physicians.

This policy resulted, in certain states, of supplying full-time consultants with or without specific educational duties. From the above plans it was assumed that the best place to carry on a program was in the practicing physician's own community. This assumption is not completely logical because the facilities for teaching, clinics, etc., are not always available, and the exigencies of private practice often interfere with attendance.

Medical schools now began to offer opportunities for physicians to come in for short periods of intensive study of obstetrics and related subjects. The physician usually paid his own

way. Later, some public health and organized medical bodies began to financially sponsor individual attendance upon formal courses or clinics. Meanwhile public health nursing, largely centered around maternal and infant care; county health units, better hospital facilities, and the development of hospital practice were developing.

In Minnesota a program has been carried on for nearly twenty years. We went through the various stages of volunteer speakers, paid lecturers, but at no time did we have area consultants. From the beginning there has been sympathy and cooperation between the state health department, the state medical society and the university. Perhaps the community of feeling and cooperation is the reason for whatever success our combined efforts have accomplished. We hope we may be pardoned for feeling that we have had some measure of success, in as much as our maternal mortality had dropped from 5.2 per 1,000 live births in 1915 to 2.7 in 1939, compared to 4.4 for the nation, and infant mortality in Minnesota fell from 70.1 per 1,000 live births in 1915 to 35.8 in 1939, compared to 51.0 for the nation.

Up until comparatively recently we had only a few outlying organized public health districts. Through all these years we have made steady progress largely because the profession has been unified in obstetric thought. We have one medical school. (Fifty per cent. of the physicians practicing in Minnesota graduated from this university.) The obstetric leadership was conservative. Comparisons of the obstetric knowledge of our graduates on the basis of certain national examinations indicated that they were well equipped with sound fundamentals. Obstetric practice was gradually shifting into the hospitals where control could be exercised. Minnesota has a rather unusual distribution of physicians because of the presence of only a few large cities and the Mayo Clinic. Of the nearly 2,500 members of the Minnesota State Medical Association only 1,000 practice outside of Minneapolis, St. Paul, Duluth and Rochester. Obstetric practice in these cities has become largely a hospital affair. (Last year the percentage was 96, and in the state as a whole it was 64 per cent.) Our efforts have been concentrated, therefore, on physicians practicing outside the four larger cities.

At one time we believed that the best place to carry on the courses was in the physician's own community. Perhaps this was because we did not have our Center for Continuation Study. After having tried both methods, we now know that the practicing physicians themselves as well as the staff would rather have the program at the University. The State Health Department is also in agreement and sponsors such courses with the University of Minnesota and the State Medical Association. At the University the physicians spend from three to six days in concentrated study. They live together in the Center for Continuation Study building. With the exception of clinics, all their classes are held there.

The Center for Continuation Study building is the brain-child of a great medical statesman, the late President of the University of Minnesota, Lotus D. Coffman, following out his idea of a state-wide campus or "A University for all the People." It is designed to offer a place for continuation study in any department of the University. It offers lecture, study and seminar rooms, a chapel (used also for lectures), lounge, large dining room, served from the Students Union, and hotel rooms with bath, where the attendant upon courses may live alone or with his wife during the courses, and to top off its facilities is a garage in the basement where he can park his car, at a small fee, during his whole stay. In short, it offers all the facilities of a fine club in the scholastic surroundings of a great university.

In addition to the information they obtain from the faculty, there is the additional advantage of discussion with practitioners working in districts similar to theirs. Instead of a few hours of instruction given under conditions at home (subject to professional calls all the time) there is nothing to interfere. The courses vary from 21 hours for three days to 36 hours for six days. In the three-day courses the evenings are occupied. In the six-day courses they are not. The expense of such courses is room — $1.25 per day, meals $1.50 per day, tuition $15 for three days and $25 for six days (no extras).

We have had two classes of registrations in our courses for obstetrics, premature and newborn care — voluntary and sponsored. Both types attend the same courses. In the case of those sent by medical societies, the expenses have

been paid by the health departments of Minnesota, North and South Dakota. The men are selected by their own society members. The University gives the course. The public health department pays the bill. The responsibility for attendance and interest is fixed on the sponsored registrant by his group back home as he is expected to come back and tell what he has learned.

During 1938-39 ten physicians were sent from North Dakota. During 1939-40 Minnesota sent 54 representatives to the three-day course on Problems of New-born and Premature Infants, and 45 representatives to a three-day course in Obstetrics. South Dakota also sent 20 representatives to this course. North Dakota is sending 30 representatives to a course in Diseases of Infancy and Childhood this month after having sent 25 to the course in Venereal Disease. South Dakota is sending 20 to the Pediatric course. They plan to send 30 physicians to a course in Obstetrics this fall. At the present time we believe that this method is superior to sending courses to the membership, and it is apparently not any more expensive.

Good obstetric and pediatric programs consist of lectures, demonstrations, clinics and round-table conferences. Groups varying in size from 25 to 75 physicians may be taught. Each lecture is followed by a period during which questions can be asked, and a general round table is held each day. Only teachers expert in their field are asked to serve on the faculty. They should be prepared to answer objections to any statements they make. All teachers are cautioned to remember that they are talking to mature men who have had obstetric experience probably under conditions less favorable than the teachers. They should also remember that these men want to learn how to practice better obstetrics.

We have had a favorable reaction to our courses. We believe that until a better method presents itself, we shall continue under this plan. The program in obstetrics and pediatrics is part of a general program in all the fields of medicine as well as all the other professional fields. The organization of this work is under the direction of Dr. William A. O'Brien, Associate Professor of Preventive Medicine and Pathology and Director of Postgraduate Medical Education, to whom I am indebted for all of the data and much of the language of this paper. Intensive postgraduate courses are given not only in obstetrics and gynecology but also in all other branches of medicine.

So you see that at Minnesota we take the matter of postgraduate intensive short courses for practitioners very seriously. The faculty is composed of highly trained men within the medical school, together with equally well trained teachers about the state, particularly from Duluth and Rochester and the State Department of Public Health.

As we have said, the need is great, country physicians demand and appreciate it, county societies and state health authorities think so much of it that they furnish money for selected men to attend. Why is all this done? Certainly not only for the benefit of the individual physician, but that he may return to his community with his added and refreshed knowledge and enthusiasm inspired to help raise that community to the highest possible level of obstetric efficiency; to make the hospital, or in its absence the local professional group the center for disseminating to the nurses, practitioners and the public, the establishment of mothers' classes, educational classes for other women; in short to make his community obstetric conscious. The whole lay public may also be educated — and they welcome it for they realize that it is for the community welfare.

Having always been a teacher and practitioner in a large city, I have been accused of not understanding the rural problems. Fearing that this might be true, I asked Dr. John H. Moore of Grand Forks, Chairman of the Maternal Welfare Committee of North Dakota, to give me the real rural viewpoint, for he has spent his life studying North Dakota hospitals. He says: "The problem of the rural hospital in dealing with obstetric patients is a difficult one, but by no means insurmountable. North Dakota has no maternity hospitals. While some of the larger general hospitals have well organized maternity departments, isolation of maternity patients is difficult and must naturally depend upon the efficiency of the nursing personnel and complete coöperation of the medical staff. This coöperation has been effective.

"I have failed to find any evidence of cross-infections or epidemics of puerperal sepsis. This may be luck but I am inclined to credit this to the efficiency of the entire personnel. Hospitals

have solved the problem by:

1. Devoting one floor to obstetrics.
2. Providing small wards of two to ten beds.
3. Delivery and labor rooms.
4. Sterile supplies.
5. Well trained nurse anesthetists.
6. Previously prepared intravenous outfit and solutions for use in hemorrhage or toxemia, or obstetric shock.
7. Provisions for prompt packing in cases of hemorrhage.
8. An incubator for prematurity.
9. Adequate nursery space.
10. Infant diet kitchen.
11. A laboratory with well trained technician.

"If a community is enterprising enough to have a hospital, it seems evident that it must have at least one physician on its staff with enough scientific interest to assure a minimum laboratory service. An enterprising physician can train an intelligent nurse to do a majority of the usual laboratory procedures.

"I realize that as I have tried briefly to picture the needs of the rural hospital for the obstetric patient, omissions have occurred, but there is one other important item, namely the obstetric record. No hospital is too small or too rural to omit it. For this I know of nothing better than the Duluth obstetric record, which is widely used in North Dakota hospitals."

Thus you have illustrated what the physicians of North Dakota, which is almost entirely rural (there are no large cities) are doing for their communities, for themselves and for the cause of good obstetrics. And it is bearing fruit, too! Dr. Moore in great glee informed me that their mortality rate was one point better in North Dakota than Minnesota's.

Finally we may say that twenty-five years ago the consequences of Childbirth were at such a low ebb that enlightened professional opinion demanded better obstetric care. By 1930 progress had been such that a great movement was finally inaugurated which included: better education of the medical student and greater enlightenment of the public. This movement also included continuation of the education of the practicing physician by concentrated courses and his return to his community to make it the center of public and professional cooperation for better obstetrics and the saving of mothers and babies.

DISCUSSION

STAFF SUPERVISION

William Cooley, Sr., M.D., Peoria: In the hospital with which I am connected operative deliveries have shown a marked decrease. This may be due partly to the Maternal Welfare activity and partly to our recent staff organization.

Last year there were 2,705 births in Peoria including those who came from out of the city. 1,596 of these births were from patients living in Peoria. About 94 per cent. of those living in Peoria were born in hospitals. In my early years of practices about 94 per cent of the births were in the home. The maternal mortality among Peoria residents for 1937, 1938 and 1939 was 11, 6, and 3, respectively or 5.6, 3.5, and 1.9 per 1,000 live births, criminal abortions included.

The hospital with which I am most actively associated has 52 active and 126 associate members. The latter have the same privileges as the active members except they cannot vote or hold office.

Last year 88 doctors attended 1,024 deliveries in the Methodist Hospital. To make rules and regulations for that many doctors to follow, when there have been very few or none and not have any dissatisfaction is rather difficult. However, we have had very little trouble. Many of those who objected most strenuously at first are now among the most cooperative.

Qualifications for this service are the same as for staff membership. Plus the additional requirement that at least 50 per cent. of his practice is in the field of obstetrics and/or gynecology. Members of the attending staff of other hospitals, whose qualifications meet the requirements of our hospital, are permitted to attend their patients under the same rules and regulations governing the obstetrical staff.

1. Graduate of a recognized medical school.
2. Legally licensed to practice in the State of Illinois.
3. Qualified for membership in his component county medical society.
4. Practicing within a reasonable distance.

In most of the obstetrical complications the new hospital rules require consultation with a competent consultant. Requirements of a competent consultant: 1. Diplomat of the American Board of Obstetrics and Gynecology; 2. a fellow of the American College of surgeons, coming under the classification of obstetrics and gynecology; 3. one year internship in a recognized hospital, one year residency in an approved hospital in obstetrics and gynecology, and five years practice 50 per cent. of which has been in the field of obstetrics and gynecology; and 4. equivalent training and experience subject to the approval of the chairman and vice chairman.

Consultation with a competent consultant is required in all of the following major procedures.

1. Prolonged labor — dystocia (24 hours).
2. Cases requiring cesarean section.
3. Difficult breech presentations.
4. Difficult forceps cases or versions.

5. Occiput posterior presentations requiring forceps or version.
6. Other complicated cases such as: eclampsia, placenta previa and hemorrhage.
7. Every pregnant puerperal patient with a major medical or surgical complication.

At first it was sometimes difficult to get the attending men to request consulation for as Adair says, "Unfortunately, the ones who mind it the most are often those in greatest need of it. It is best to consider a consultation as a helpful conference rather than an arbitrary decision. It should be regarded as being of educational as well as protective value. Consultation should be encouraged and, if necessary, insisted upon whenever the interest of the mother or baby is in jeopardy."

When the staff members understood that it was to their interest as well as the patient's they fell right into line with the idea. Their attitude now has changed and they are glad their patients have the additional security which competent consultation affords. When consultation is required by hospital rule it is the usual practice for the consultant to charge no fee where payment of such a fee would be a hardship.

When a doctor is admitted to the staff and wants to do major surgery he is permitted to do so on the basis of unit credits, which are based on an individual's training and experience. Most of you are no doubt familiar with unit requirements. If he has six or more unit credits he will have unlimited privileges in general surgery. Less than six his work in major surgery has to be supervised until he acquires the required number of units. Time will give him the required number of units since he gets one unit credit for each two year's practice.

Maternity rules are similar to those established by the Chicago Board of Health for obstetrical division in that city. No doubt all of you are familiar with these regulations.

1. Gloves must be worn for all examinations and deliveries. Hands must be scrubbed for ten minutes before putting on the gloves.

2. Do as few vaginal or rectal examinations as possible.

3. Except in postpartum emergency the doctor must be present when pituitrin is given. If given antepartum the dose must not exceed five minims and patient must be on the table ready to deliver. Reasons for giving pituitrin must be recorded.

4. Everyone in the birthroom must be properly masked.

5. All cases of postpartum infection are to be transferred from the obstetrical department and placed in isolation. Morbidity is defined as any case reaching a temperature above 100.4 on any two successive postpartum days after the first postpartum day. The probable cause should be determined.

6. No douches or intravaginal treatments should be given in the maternity section postpartum unless absolutely indicated.

7. All normal babies are to be put on the regular feeding routine. All under six pounds should be weighed before and after nursing.

8. All circumcisions must be done with strict surgical asepsis.

9. The use of analgesics during the labor shall be restricted to a minimum, thus lessening the danger of asphyxiation of the baby and the number of unnecessary operative deliveries. Morphine should not be given within four hours of the expected time of delivery. Anesthesia: Ether and gas are preferred and they only near end of first stage and in second stage. Chloroform and spinal anesthesia should not be used.

10. Large doses of oxytocics are discouraged. I refer to quinine and pituitary extract. Quinine has to a large extent been discontinued before delivery except in small doses because of the effect on the baby. All recognize the danger of large doses of pituitary extract and while we have not been able to control the dosage entirely we have made it a rule that when it is given antepartum the dose must not exceed five minims and patient must be on the table ready for delivery, except when smaller doses are used for the induction of labor. In all cases where it is given the attending physician should be present.

Supervision of resident physicians and interns: The administrator of our hospital has control and authority over all resident physicians and interns. He is responsible for the good conduct and efficient administration of internal affairs as pertaining to resident physicians and interns. The intern of the obstetrical service is required to see each patient immediately on admission and obtain:

1. History and make a physical examination.
2. Diagnose position and presentation.
3. Take the blood pressure.
4. Make rectal examination only.
5. Notify attending physician of his findings.

He is not permitted to assist at necropsies or at infected operations. It is his duty to scrub as far as possible for each delivery. He is expected to assist at all cesarean sections. The intern on the obstetrical service should not relieve on other services, neither should the interns on the other services relieve on the obstetrical service.

In cases of abortion the obstetrical service requires one competent consultant to be chosen either from the surgical, gynecological or obstetrical divisions of the active staff or the associate medical staff. The consultant must examine the patient and satisfy himself concerning the necessity for the procedure and record his opinion on the consultation sheet.

Obstetrical service meetings are held once a month and all members of the active staff in the Obstetrical Service are expected to attend. A representative from the Obstetrical Service is on the Medical Records Committee. This man makes reports at regular service meetings concerning his findings in the obstetrical hospital records. Missed diagnoses, mortality and morbidity reports and the handling of cases are

brought up for discussion. Morbidity records and complications are discussed informally and in detail as well as reasons for maternal deaths. These discussions are impersonal; the doctors and patients names not being mentioned.

Besides the monthly service meetings we have weekly pathological conferences, and all the services are included. Any qualified physician who is interested is welcome to attend. They are conducted largely by the resident staff who are in a position to select the most interesting cases in the hospital.

O. H. Crist, M.D., Danville: As a member of the Maternal and Child Welfare Committee of the State Society, I am glad to discuss any phase of a subject dealing with these principles. For the improvement of maternal and child care, the state committee has been exerting its efforts along three main lines. For more than three years we have been formulating and promoting ways and means for reducing maternal and child mortality and morbidity.

The lines of attack have been: *first,* to encourage doctors to give better services in such cases and to offer ways and means for their preparation; *second,* to educate the public in our state to ask for, to expect, and even to demand better service; *third,* to improve hospital facilities and service in such cases.

The methods used for improving the doctor's service were: *first,* by refresher courses which have reached nearly every county in the state; *second,* by intensive summer courses at the University's teaching hospital; *third,* by hospital staff conferences; *fourth,* by a maternal welfare program sponsored by the various County Societies; and *fifth,* by creating in the doctor an obstetric and pediatric consciousness by the previous methods and by study and reporting of deaths in these lines.

The public has been more or less informed on the necessity of better care: *first,* and primarily, by a doctor's committee in most counties who have arranged for educational lectures to groups. This method has been wide spread; *second,* moving pictures and slides with or without lectures; *third,* by a maternal and child welfare county nurse, who carries the educational program to the smaller groups and individuals.

Since the more serious and complicated cases are usually taken to a hospital, then it becomes doubly important that the best of service be available in the institutions. With this in mind some two years ago, the state committee inaugurated a movement for better hospital service and care. A subcommittee was appointed to formulate what they considered the minimum requirements for hospitals, outside of Chicago, that were to care for maternity and infant cases. It was not intended that these requirements should put any deserving hospital out of existence or even work a hardship.

These suggested minimum requirements, simple as they were, comprised some twelve pages. The hospital was considered under three principal heads: the physical plant, the equipment and the personnel.

I cannot go into detail in this time allotted, so must speak in generalities.

If the nursery is to function to its greatest efficiency, it must have the best baby possible to serve. To obtain this best baby, the state committee feels, and have written in their suggested minimum requirements, that there should be certain restrictions in the delivery department. These are few and are designed only to correct certain gross malpractices that are not so infrequently found.

First—Out of town physicians should stay with their cases or designate someone in town to be called in case of emergency. This suggestion is necessary since some men expect to be called from their homes — a distance, in some cases, of thirty or forty miles — in time to give proper attention and proper delivery of their case.

Second—The extract of pituitary gland or any of its similar preparations should not be given in larger than two minim doses, until after the completion of the second stage of labor.

Third—Consultation should be called when major abnormalities are diagnosed, or major operative procedures are contemplated. This consultation should be called as soon as the abnormality is recognized.

Fourth—The consultant shall take a complete history, examine the patient thoroughly, and fill out the consultation record showing the necessity for such operative interference.

Fifth—Forcep operations shall not be attempted until after the cervix is completely dilated as determined by vaginal examination.

It would appear that none of these regulations would be necessary, but experience in out-lying, open staff hospitals and information from many localities tells us that they are necessary.

The first nursery service is in the delivery room. The facilities necessary for the first care of the new-born are simple. They include equipment for resuscitation, warm bath, tracheal catheter, oxygen, and a heated bassinet.

Every baby should be marked for identification before leaving the delivery room.

Since a maternity hospital means any institution, other than a private home, where pregnant or parturient women are delivered and receive care, then the term "Nursery for the new-born" shall mean any separate room or rooms in such institution in which new-born babies receive care.

Physical plant—This nursery room or rooms shall have adequate sunlight, running water, and proper facilities for cleanliness, ventilation and sanitation. It shall have no connection with public bath, utility rooms, or laboratory. It must be closed from visitors of the hospital. The room temperature must be kept above 70°. Special provisions must be made for the care of premature infants. Provisions must be made for the isolation of infected cases — either actively or potentially infected.

Equipment—The equipment of the nursery should be limited to furnishings and supplies necessary for

the care of the infants only. This includes bassinets, examining table, the common instruments used in examination and treatment, and means for sterilization of the same. Oxygen equipment suitable for infant use shall be available. Suitable refrigeration facilities for milk mixtures shall be provided. There shall also be means for sterilization of all feeding utensils used in formula mixing.

For the premature there should be some type of heated bed provided. The temperature of the premature room shall be maintained at 75°. They must have means for protection against undue exposure to cold or heat.

Personnel—The nursery must be under the control of a graduate nurse. It is highly advisable that she shall have had special training in infant care. Any nurses working under her, and everyone coming in contact with the babies or with the nursery, must follow the accepted rules of asepsis and antisepsis. Nurses entering the nursery should have careful examinations before entering the service to make sure they carry no infections.

Doctors must wear sterile cap and gown and must wash and disinfect their hands before entering the nursery. An entirely separate nursing staff should care for the isolated cases.

General regulations—The apparatus such as the oxygen and the heating appliances shall be kept in perfect working order.

Visitors shall not come in contact with infants at any time.

Any baby delivered of an infected mother, and any baby delivered outside the hospital or readmitted, shall be considered infectious and shall be isolated on admission.

Complemental or supplemental feedings, when used, shall be prescribed individually by the physician in attendance and not from a stock mixture.

Nurses or doctors with any suspicion of infections or exposure to infections should be excluded from the nursery or delivery department. I believe that along this line, stress should be pointed toward the doctor. I fear that at times he does not use discretion in caring for various kinds of infectious cases and then goes directly to the maternity, the delivery room, or the nursery.

Practically all rural hospitals have open staffs. Any and every graduate in medicine, with a good reputation and ordinary skill, is permitted to work in most of these hospitals. He can, and does practice, both in the maternity and in the nursery. Since this practice is with his private patients, he treats both mother and child during their hospital stay. It is neither practical or profitable to call a pediatrician for this nursery service. Township or county orders are cared for as private cases by these general practitioners.

In my opinion there should be rules requiring consultation as soon as any serious abnormality is discovered. This consultation should be with the best informed doctor on pediatrics that is available.

These open staff hospitals cannot be conducted like a closed staff or like a teaching institution. However, as the younger and better trained physicians gradually replace, in some cases, a more careless class, the type of nursery, as well as maternal care, will inevitably be improved.

Milton E. Bitter, M.D., Quincy: As a member of the State Maternal Welfare Committee it becomes my duty to make suggestions and set forth certain ideas for the betterment of both mothers and babies throughout our state, as well as the nation. We, as the State Maternal Welfare Committee, have certain ideals toward which we are striving in order to lower the maternal and infant mortality as well as morbidity, and I have been asked to discuss one of these factors, namely, the importance attached to the delivery room.

In considering the problem of the delivery room many important factors must be taken into consideration. In the first place I believe we are all cognizant of the fact that infection still represents the greatest menace to the child-bearing woman. I believe that this potential danger exists both in the home and in the hospital, but when it does exist in the hospital it is due to lack of proper facilities and isolation, or faulty technique. This is particularly true in the smaller general hospital doing some O.B. work, for here they must also admit within their portals all the sick and diseased of their entire community.

The actual time of delivery represents the most likely period during which infection may be introduced into the reproductive tract, so that unusual precautions must be taken to provide the parturient woman with all possible safeguards.

Because of this fact, and the fact that conditions under which confinements are conducted are often more difficult for everybody concerned, including the patient, not to mention the fact that in O.B. practice each patient is really two patients, there is no doubt in my mind that the maternity division should be the equal of, or even better than, the surgical division.

Further, I believe that infected patients, from whatever source — medical, surgical or gynecological, ophthalmologic or otologic — carry intimate and remote dangers to the parturient woman, and that the strictest isolation must be established and maintained.

As to the planning of a delivery room, I believe that three things are very essential. 1. Location; 2. Equipment; and, 3. Personnel.

Considering location — this should be an isolated or separate department from the hospital and be located as far as possible from likely sources of infection, such as the pediatric department, laboratories and rooms devoted to infected surgical or medical cases. Further, the delivery room should be located close to the hospital rooms devoted to maternity cases. It should have good exposure, sufficient daylight and ventilation. It should be large enough to provide adequate space for several attendants who conduct labors, as well as adequate space for equipment. The equipment should be ample for the needs

of the O.B. patient. According to the Maternity Hospital Law and requirements for licensure for maternity hospitals, divisions, general hospital and maternity home, the minimum equipment shall be provided and in addition all hospitals shall provide the following:

1. A standard sterile uterine pack in the delivery room at all times.
2. Facilities for infusion and blood transfusion in the delivery room.
3. An instrument for determining blood pressure.
4. Carniotomy instruments.
5. At least one O.B. forceps.
6. A heated bed for the new-born infant.

Medical supplies: Ergot, alcohol, pituitrin, soap, disinfectant, stimulant and anesthetic approved by the attending doctor.

Silver nitrate 1% — preferably that put up by the Department of Public Health Laboratory:

Other items of importance would include incubators, tracheal catheters, identification beads, and adequate supplies of sterile linens, basins, needles, syringes, etc.

As to personnel, the licensee is the person responsible for the conduct of the hospital. This person must be of good moral character, free from infection and physically clean. If the licensee is not a registered graduate nurse, a registered graduate nurse must be on duty at all times when patients are present in the hospital.

All deliveries shall be attended by a licensed physician.

All personnel, nursing or otherwise, shall present a recent certificate issued by a registered doctor, showing good health, including freedom for infections lues or gonorrhea, and I think it should be added, tuberculosis.

All personnel with evidence of acute respiratory disease shall be excluded from the maternity division.

H. L. Penning, M.D., Springfield: I think you have seen from the discussion that has been given by Dr. Bitter and Dr. Crist the background that was laid so well for us by the Maternal Welfare Committee as an introduction to the present requirements that have recently been introduced for maternity hospitals by the State Health Department.

As the doctors have told you the requirements are simple. They are what the majority believe to be safe and they are being administered with what we feel is a grain of common sense, and of course a certain degree of interpretation becomes necessary in each individual case. We have not, as yet, incorporated definite staff rules of procedure and we do not contemplate that type of venture at this time.

We sincerely hope that the movement which has been begun by the American College of Surgeons, so ably described by Dr. Cooley, of staff organization and staff rules of procedure built up and administered by doctors, will be more widespread and will be used by hospitals through the state. We feel that the rules of procedure are something that belong to the jurisdiction of the doctors and common opinion on this will, in time, produce the desired results.

Charles C. Rentfro, M.D., Chicago: This is a very interesting meeting and I am glad to see Dr. Cornell here this afternoon, because Dr. Cornell was the first chairman of this section and he was also the man who took the brunt of the battle in Chicago to establish the Maternal Welfare Committee. He probably received many kicks and much condemnation in the State of Illinois on the Maternal Welfare Committee. Having been on that committee with him, we were well convinced of the need of more and better care for the maternal and the infant patient.

Staff organizations has always been an interesting thing to me, because being on the staff of a hospital which is an organization, our problem is the same as your problem. Somebody has to take the responsibility for any organization, and all institutions should have a number of men whose duty it is to look after the maternal patient and the infant. They must take into consideration that they are given a duty not only to the staff but to the patient. They must take the responsibility and then must administer the responsibility. I believe it is important that the staff of a hospital have a definite number of men whose job it is to look after each department. The staff should hold them to it and these men should do their work. The woman who comes to us is entitled to the best we can give her, and I believe it would be well within the authority of the Department of Health of the State of Illinois to ask each hospital within its realms to tell, as director of health, what they propose to do for the care of the sick in their community. That means they have to organize and determine what they are going to do, and then make plans and require of the men who come there to live up to certain regulations. They have a definite duty to the woman who comes there to be delivered.

Another point is this prenatal care. In prenatal care in the association of hospitals it is pretty hard to get any early record. I think that by having a plan whereby you have the patient come to the hospital as early as you could and have the patient pay five or ten dollars and give them a receipt for payment on their hospital bill when they come to be delivered, in this way you have on record at least a preliminary examination of that patient before they go into the hospital to be delivered. It will also help you and the intern to evaluate what you are up against when he gets a patient he has never seen before. The maternal hospital must be brought under control and I believe the only way to do it is to set aside certain men to do that work.

One more point is the importance of the responsibility of the men who take charge of the obstetrics in the hospital to the younger men. If we expect to have better obstetrics in the hospitals we must do something for the younger men. In the ordinary staff meetings a young man sometimes has a chance

to read a paper on obstetrics, but if he gets one chance in a year he would be doing well. If we required these younger men to write papers on some definite obstetrical subject in which they were interested and ask them to read the papers not only once, or twice, but often during the staff year we would find that in a little while the community hospital would have more men to go along and carry the burden of fetal and maternal welfare and the burden of morbidity and mortality.

THE CONTROL OF TUBERCULOSIS

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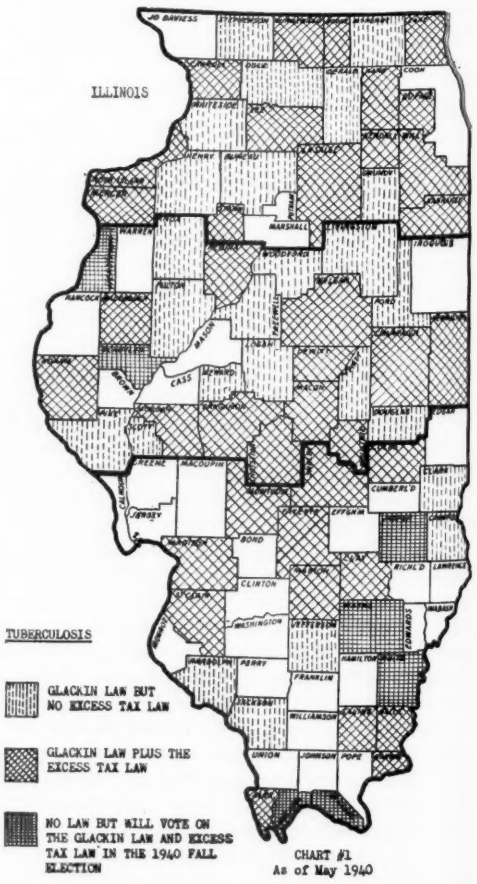
Introduction: Tuberculosis has been, for many centuries, one of the most serious chronic diseases afflicting mankind. According to Long[1], prior to 1800 pthisis was carrying off one-fifth of the population. Since 1800 there has been a steady and striking decrease in the incidence of and mortality from tuberculosis. For example, death rates were about 300 per 100,000 population before 1900, whereas today in many states and provinces they are well below 50 per 100,000 population. Nevertheless, tuberculosis was the only communicable disease except pneumonia to rank among the first 12 causes of death in Illinois in 1938[2]. It is seventh among all causes, and exclusive of pneumonia, tuberculosis causes twice as many reported deaths as all other communicable diseases combined.

The social significance of tuberculosis far outweighs its importance as a cause of death. Its incidence is greatest in the 15-45 age group, and those are the years when the burden and responsibility of establishing homes is greatest. Few families are fortunate enough to be able to weather the cost of months or years of treatment, and when the family wage earner becomes tuberculous, the seriousness of the situation is multiplied many fold. Thacker[3] states that the Committee on Waste in Industry of the Federated Engineering Society estimates the annual cost from the ravages of tuberculosis in this country to be about $500,000,000. Thus, there is some justification for the title "Public Enemy Number 1," which Smith[4] has given to tuberculosis.

The decline in tuberculosis rates has been effected by at least two major influences. The first of these made itself felt about 1800 and coincided with improved environmental conditions which accompanied world-wide industrial changes. There is no conclusive proof, however, that the relationship is other than chronological.

In any event, tuberculosis death rates have been continually decreasing throughout most of the world during the past 150 years whether or not specific control measures have been used, and we should not close our eyes to this potent but unexplained factor.

The second major influence in Illinois, which began about 1900, consists of voluntary organized war on tuberculosis. Outstanding landmarks[5] have been the organization of the Illinois Tuberculosis Association in 1904, the institution of Christmas Seal Sales in 1908, the materialization of Sanatorium programs beginning in 1906, the passage of the first Glackin Law for municipalities in 1908, and for counties in 1915, the elimination of tuberculosis in


ILLINOIS
TUBERCULOSIS
GLACKIN LAW BUT NO EXCESS TAX LAW
GLACKIN LAW PLUS THE EXCESS TAX LAW
NO LAW BUT WILL VOTE ON THE GLACKIN LAW AND EXCESS TAX LAW IN THE 1940 FALL ELECTION
CHART #1
As of May 1940

[4]Given before the Section on Public Health and Hygiene at the Annual Meeting of the Illinois State Medical Society, Peoria, May 22, 1940.

cattle, the free distribution of Educational literature by the State Department of Public Health, and the institution of free examinations of sputum in 1929. Recently, we have begun to realize that rehabilitation is a vital factor in control.

There is no accepted specific preventive measure to aid in tuberculosis control. Man enjoys no effective natural immunity. We cannot satisfactorily immunize, either passively or actively. All too often it is even impossible to permanently arrest cases. Fortunately, there is no serious "carrier" problem. Therefore, the only successful control measures today center around the diagnosis, the treatment and segregation of cases.

Proper control requires, 1. early treatment of all or nearly all cases; 2. adequate treatment, and 3. prolonged follow-up, including suitable rehabilitation. Early treatment of all cases demands good reporting, intensive case detection programs, and sufficient facilities for treatment.

We note from Table I, that in the five-year period, 1934-38 inclusive, the average cases reported yearly is 9,087 and the reported deaths 3,986. The case/death ratio is a little less than 2.3 to 1.

REPORTED CASES AND DEATHS IN ILLINOIS

YEAR	CASES	DEATHS	CASE:DEATH RATIO
1938	8222	3686	2.23/1
1937	9064	3995	2.27/1
1936	8506	4050	2.10/1
1935	9911	4075	2.43/1
1934	9734	4125	2.36/1
1934-1938 Average Yearly	9087	3986	2.28/1

TABLE 1. Cases and death reported in Illinois 1934-1938, Illinois State Department of Public Health Annual Reports.

Reporting is generally considered good if the ratio is 3:1. It should be noted that the figure 2.3:1 includes a great number of cases which were reported solely because they died. When a tuberculosis death certificate or a positive tuberculosis laboratory report is received, the Department checks it against the morbidity report and if there has been no report, the physician and local health officer receive a letter requesting a morbidity report. If no report is received from them the case is tabulated on our morbidity report from the death certificate by the Central Office. If this were not done, our ratio would probably be considerable below 2:1. Thus, the Illinois Department of Public Health morbidity report for tuberculosis represents practically all tuberculosis that comes to the department's notice, because it includes:

(1) Cases reported by the physician before the patient's death.
   a. voluntarily
   b. as a result of follow-up of positive laboratory report by the Department

(2) Cases reported as cases because they died of tuberculosis.
   a. reported by physician at time of death
   b. reported by physician after request by the department
   c. reported by the Department because of death certificate

The next slide illustrates the average yearly reporting by groups of counties of cases and deaths for the five-year period 1934-1938, inclusive. The state is divided, exclusive of Chicago, into the North, Central, and Southern tiers, with population approximately equal.

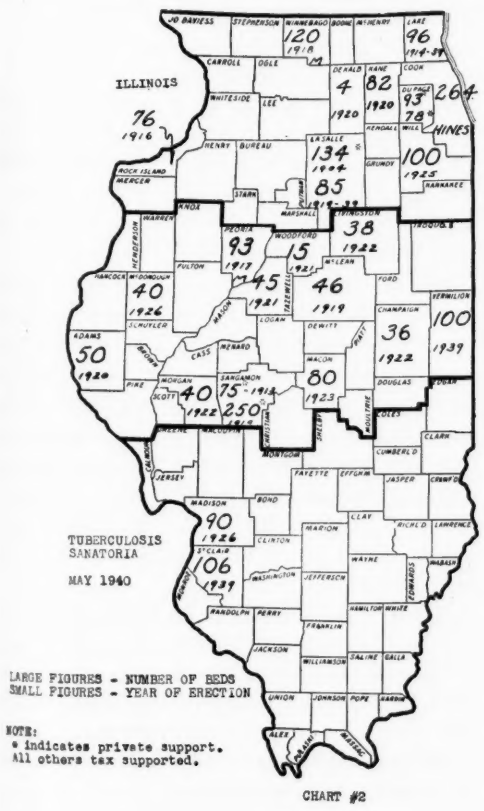


CHART #2

TABLE 2

	POPULATION 1930	COUNTIES	CASES DEATHS	CASE-DEATH RATIO
NORTH	1,212,809	25	1103/530	2.08/1
CENTRAL	1,216,959	32	1099/446	2.46/1
SOUTH	1,218,763	44	1039/568	1.83/1
COOK CO.	3,982,123	1	5846/2445	2.39/1

TABLE 2. The Average Yearly Case Death figures for the period 1934-1938 inclusive, by tiers in the State.

On the basis of 5-9 cases per reported death per year, it is estimated that Illinois has 20,000 to 35,000 cases.

It is apparent that tuberculosis is widespread throughout the State; in fact, there were only 5.8% more cases reported from the Northern than from the Southern tier, and, of course, reporting has been shown above to be less complete in the South. One should compare the case death ratios. Also note that the death rate per 100,000 population is highest in the Southern tier. One can conservatively contend that future control should stress better reporting throughout the State, particularly in the Southern tier.

Many states have state appropriations for the care of tuberculosis patients, but the State of Illinois never has had such appropriations. The burden of care must fall on the patient, or his relatives, or on some voluntary agency, or on his local unit of government. Too often there is little or no care, even for far advanced sputum positive cases.

It was early realized that public funds would be needed for the care of most cases. Therefore, in 1908, the State Legislature passed the Glackin Law authorizing municipalities to construct and maintain free public tuberculosis sanatoriums. Four cities took advantage of this law, and in fact, municipal sanitariums still continue to function in Chicago, Rockford and Peoria. In 1915 another Glackin Law was passed by the General Assembly which permitted counties by popular vote to levy a tax, the returns from which could be used only for anti-tuberculosis work. The law permits a county either to erect a sanatorium for its citizens or to pay for their care in another suitable sanatorium. The law, although amended from time to time continues to furnish taxing power to the counties for the treatment of tuberculosis. Chart No. 1, is a map showing the 38 counties which have voted the Glackin Law with the excess tax provision. All but two[6] of these counties are doing an excellent job of caring for their citizens ill with tuberculosis. All these counties have voted the excess tax since 1930.

The Glackin Law is also in effect in 25 counties but the tax is not a special tax which can be collected in excess of the statutory tax limit of 25c. Of these counties 12 are giving care to their cases, 5 are giving poor care, and 8 are giving practically no care[6].

In addition, there are 7[7] counties which will vote, most of them favorably, on the Glackin Law and excess tax law this coming fall. Two others already have the Glackin law but will vote on the excess tax provision.

It is evident that the Southern tier is below the rest of the state in the percentage of counties operating under the Glackin Law. Counties without the Glackin Law usually do not have sufficient revenue to treat cases.

As a result of the Glackin Law some counties have established sanatoriums for the care of their citizens — Chart No. 2 depicts the sanatorium situation in the State[8]. It reveals that in the Northern tier, exclusive of Cook County, there are 7 counties which have a total of 599 free beds for the use of residents of their counties only. In addition, La Salle county has 134 beds available to anyone at $18.00 to $25.00 per week. DuPage county has 2 private sanatoria with 717 beds (78 & 93) making 305 more in the tier. On the bases of 2 beds per reported death per year, there should be 1060 beds in that region instead of 904. There are 17 counties in that tier with no facilities.

In the Central tier 11 counties and 1 City provides 583 free beds for county and city residents only, some of which if not filled may be used by tuberculosis cases from other counties at rates ranging from $12.00 to $25.00 per week.

In Sangamon County 2 private institutions provides 325 beds on a pay basis to patients from any county. Thus 12 counties (13 sanatoriums) furnish 908 beds. Multiplying the deaths (446) by 2 indicates 892 beds would be sufficient.

The picture is different in the Southern tier — there we find only 196-free sanatorium beds, no private facilities and 54 beds in an isolation unit in Alexander County. The Southern tier has 568 deaths on the average each year. Multiplied by 2 that means 1136 should be available. 41 counties have no facilities.

It is thus seen that, exclusive of Cook County, 2272 sanatorium beds are available for tuberculosis patients, but that on the basis of reported deaths, 3088 are needed. It is further apparent that the greatest need is in the Southern tier. (The 2272 includes 264 beds in Hines, not included in any one tier, free to veterans)

Most sanatoria, exclusive of Cook County, were erected between the years 1916-1926. From 1926-1939, no new beds were added. 1939-1940 saw 63 more in Lake County, 35 more in La Salle, 106 in St. Clair and 100 in Vermilion County.

It seems reasonable to conclude that 25 years operation under the Glackin Act produced about 75% of the number of beds needed. It should also be noted that in the past 14 years, since 1926, only 4 new sanatoria have been developed, all in 1939-1940. (In 1939 Lake County discontinued 23 beds in the County Hospital and built a 96 bed sanatoria; La Salle County discontinued an inefficient cottage plan of 35 beds and built a new 85 bed sanatoria in 1939.) There is an explanation for this situation.

In 1927, the Courts declared that taxes could not be collected under the Glackin law if they were in excess of the statutory limit of 25c. An additional excess tax law was therefore passed in 1929 and 38 counties since 1930 have passed the excess tax feature. Nevertheless, the 1927 court decision slowed up the tuberculosis program in Illinois for several years. Perhaps this apparent lack of progress was the reason that the Legislature in 1939 passed a new law entitled, "An Act in Relation to the Establishment and Maintenance of Tuberculosis Sanitarium Districts." Its objective seems to be to increase the number of free beds for the treatment of tuberculosis and to make those beds available to residents of counties which are too small or too poor to erect institutions of their own. The bill has met with some criticism from various responsible organizations, and as far as can be learned has not been incorporated into the tuberculosis programs of any counties to date. Regardless of disadvantages which may be present in the bill itself, it does signify legislative interest in tuberculosis. This type of legislative interest usually reflects public demand.

More beds are needed and these beds can be made available only by direct tax support or by private agencies. Private agencies will not supply sanatoria unless they are assured of payment for services rendered. Assurance can be obtained in only one way and that is by the use of governmental revenue. It has not been stressed here, but it is a fact that the highest death rates, and the least adequate facilities for treatment are found in those parts of the state which have the lowest per capita taxable wealth.

The need for state appropriations has long been recognized. I quote from the *Illinois Health Quarterly,* Volume 1, No. 1, January-March, 1929 — "Appreciable progress in the future against tuberculosis in man will depend in large measure upon a generous appropriation from the state for that purpose. A half million dollars per year, properly apportioned, would be sufficient to inaugurate a program in keeping with the magnitude of the problem, and the dignity of the State. Spending a million dollars a year for combatting tuberculosis among cattle and $6,000 per year for combatting tuberculosis among humans appears to be somewhat of harmony with the customary evaluation of bovine and human life."

At this time, however, it seems probable that the Glackin Law can be put into effect in practically all counties in the State and that the funds thus raised will be adequate to maintain sanatoriums for the treatment of all cases. It has been suggested[9] that funds be obtained from the State or Federal Government for the erection of two sanatoriums of 250 or 300 beds each, which should be located in the Southern tier. If the counties pass the Glackin Law, they will be able to maintain the institutions. This seems to be a sound plan, and one which will not work a hardship on those counties which have already passed the Law and erected their own institutions.

In view of the fact that we have been using deaths in the 5 year period 1934-1938 as a basis for discussion, but that as a matter of fact the rates have been decreasing each year, it is probable that there is no need to push the erection of institutions in the Northern and Central tiers. If all counties will vote the excess tax law, it is to be expected that more institutions in the Northern two thirds of the state will become available, if they are needed.

Before leaving the Glackin Law, I should like to voice a word of caution. There are many legal pitfalls to trap counties in their efforts to vote the law, and in every case no definite step should be taken until competent advice has been received. This advice and many helpful sugges-

tions will be gladly furnished without charge to any responsible groups of interested people by the Illinois Tuberculosis Association or the State Department of Public Health.

Time will not permit much discussion of the activities and jurisdictions of the only two organizations actively interested in tuberculosis control in Illinois. One is the Illinois Tuberculosis Association, which is an unofficial organization, and the other is the Illinois State Department of Public Health which is the official agency. However, it should be emphasized that there is probably no closer cooperation between any two organizations than that which exists between the Illinois Department of Public Health and the Illinois Tuberculosis Association. The Association's work is primarily educational and promotional, but as far as possible it also extends aid in the actual discovery and control of cases. The department is also active in the educational field, and is gradually extending its case finding and control work.

When sufficient funds and treatment facilities become available, the problem of control becomes primarily a matter of early case detection and life-long follow-up of all cases. In the meantime those activities should not be neglected.

SUMMARY

1. Although tuberculosis incidence and death rates are declining tuberculosis remains perhaps the most significant and serious communicable disease in Illinois today.

2. We should remember that there is an unexplained factor operating to decrease tuberculosis rates.

3. Reporting should be improved, particularly in the Southern tier.

4. Sanatorium facilities should be provided by State or Federal funds for the Southern tier.

5. The Glackin Law should be passed in all counties in the State. This is the most important control measure to stress at this time. Advice should first be obtained from the State Department of Public Health or the Illinois Tuberculosis Association.

6. When the above objectives have been attained, the probelm of control is simplified, but educational activities, early case detection, early case treatment, and rehabilitiation should not be allowed to stagnate during the interim.

THIS PRESENTS VARIOUS ITEMS RELATIVE TO TUBERCULOSIS SANATORIA AND LAWS IN ILLINOIS AS OF MAY 1940. THE DEATHS ARE THE AVERAGE YEARLY REPORTED 1934-1938.

	Geographical Area	North (b)	Central	South	Total
2.	Number Counties	25	32	44	101
3.	Sanatoria and Beds maintained by counties	6-479	10-490	2-196	18-1165
4.	Sanatoria and Beds maintained by Cities	1-120	1-193	-	2-213
5.	Total Cities and municipal beds	599	583	196	1378* 264
					1642
6.	Sanatoria and Beds privately owned	3-305	2-325	-	5-630
7.	Total of all beds	904	908	196	2008* 264
					2272
8.	Average reported deaths Illinois 1934-38	530	446	568	1544
9.	Estimated beds needed if two per death	1060	892	1136	3088
10.	Estimated beds deficient	-156	+16	-940	-1080* 264
					816
11.	Counties with no Glackin Law	3	8	27	38
12.	Counties with Glackin Law in excess tax	8	12	5	25
13.	Counties with Glackin Law and in excess tax	14	12	12	38
14.	Counties now planning to vote Glackin Law and excess tax in the fall (*Plus Hines Veteran Hosp. 264)	0	3(a)	6(a)	9

(a) Has Glackin Law already in force, but not the excess tax

(b) Exclusive of Cook County (see accompaning maps for Counties in each tier).

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4.	Sanatoria and Beds maintained by Cities	1-120	1-193	-	2-213
5.	Total Cities and municipal beds	599	583	196	1378* 264
					1643
6.	Sanatoria and Beds privately owned	3-305	2-325	-	5-630

7. Total of all beds	904	908	196	2008* 264 2272
8. Average reported deaths Illinois 1934-38	530	446	568	1544
9. Estimated Beds needed if two per death	1060	892	1136	3088
10. Estimated Beds deficient	-156	+16	-940	-1080* 264 816
11. Counties with no Glackin Law	3	8	27	38
12. Counties with Glackin Law in excess tax	8	12	5	25
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(a) Has Glackin Law already in force but not the excess tax

(b) Exclusive of Cook County (see accompanying maps for Counties in each tier.

No. 9 (Chart No. 3)

This presents various items relative to tuberculosis sanatoria and laws in Illinois as of May — 1940. The deaths are the average yearly reported 1934-1938.

Dr. Hullerman has presented in a very clear and concise manner the tuberculosis problem which exists in Illinois, with special emphasis on the tuberculosis sanatorium problem. The analyses made regarding the recording of cases of tuberculosis in the three sections of the state, namely, northern, central and southern, and the analyses relative to sanatorium beds available in these three sections of the state point clearly to the problem which exists and to the necessity for increasing anti-tuberculosis activities in the southern third of Illinois. Dr. Hullerman very wisely confined his paper to a presentation of facts which have definite bearing on the fundamentals. His conclusions are sound and should be accurately remembered and applied by all groups interested in promoting activities leading toward the eventual control of tuberculosis.

In addition to giving complete approval to the facts presented, and in addition to reemphasizing the importance of the conclusions correctly deduced from the facts, it is possible to enlarge in this brief discussion on one or two of the points made by Dr. Hullerman.

In 1939 the General Assembly approved "An Act in Relation to the Establishment and Maintenance of Tuberculosis Sanatorium Districts." Dr. Hullerman referred to this Act and stated that it has met with some criticism from various responsible organizations. A few words should be said as to the reasons for certain organizations not giving approval to this Act. In the first place, this Act should not be confused with the District Sanatorium Act under which Peoria County operates outside the city of Peoria. The Act to which Dr. Hullerman referred was promoted by a group of people in Southern Illinois who are apparently sincerely interested in working out a solution to the Southern Illinois problem. However, the Act contains certain weaknesses which, until corrected, cannot be overlooked by the established organizations in Illinois which have for many years been working toward practical and efficient tuberculosis control measures.

1. It provides for a tax of five mills on each dollar of the assessed valuation of the property in any district comprised of any number of counties. It is believed that if this Act should be passed and brought before the Supreme Court, the Court would rule that a five mill tax on each dollar is an exorbitant tax, especially in view of the fact that all of the counties of Illinois that have built and are maintaining their own sanatoriums have done it on a tax which has not exceeded one and one-half mills on each dollar which is the top limit permitted by the Glackin Law.

2. The Act provides for the election of seven trustees for such a district sanatorium at a regular election. This feature tends to place the management of such a sanatorium directly into politics, and it is significant that the law does not state that there shall be medical representation on the Board of Trustees of such a sanatorium. In the light of present-day medical knowledge relative to the treatment of tuberculosis, this seems to be a serious omission.

3. The law does not provide for geographical representation on this Board of Trustees. The Board of Trustees, elected by the voters in the district, may all come from one county.

4. This Board of Trustees after elected becomes a separate taxing body. It takes the control of taxation out of the hands of the individual counties in the district, and this Board of Trustees are all powerful with regards the levying of such tax as they might feel that they need. This implies that a tax of five mills on each dollar will be assessed on all counties in the district without regard to their tuberculosis problem, or the number of patients the county may have in the sanatorium.

5. The law further provides that the Board of Trustees makes all ordinances relative to the management of such sanatorium, and one of the ordinances which they may make is to pay themselves a salary, plus expenses, of $2500 a year each. This would represent an expenditure of $17,500 a year, or enough to take care of 20 patients each year. At the present time there are in Illinois 186 sanatorium board members working in their counties in accordance with the provisions of the Glackin Law. None of them have ever received any compensation directly or indirectly for the work which they have done.

6. There appears to be no provision in the Act for the discontinuance of the tax or for the discontinuance of the district, or for any county having entered the district to withdraw from it.

The foregoing reasons are the primary ones which

have caused the Illinois Tuberculosis Association to withhold approval of the Act, and which have caused many of the County Medical Societies in 27 Southern Illinois counties to voice disapproval of this act. The original district planned by those interested in this law comprised 27 counties. Such a plan seemed to include too large an area for one sanatorium, and not enough signatures were procured on petitions to have a referendum vote April 9, 1940.

The General Assembly showed considerably more interest in the tuberculosis problem than indicated by the approval of the District Sanatorium Act. For example, the original title of the Glackin Law, approved June 28, 1915, was "An Act Relating to County Tuberculosis Sanitaria." On March 17, 1939, that title was changed and is now more accurate in that it reads "An Act Relating to the Care and Treatment by Counties of Persons Afflicted with Tuberculosis and Providing the Means Therefor." In March, 1939, likewise, the Glackin Law was further amended to improve its provisions relative to the forming of sanatorium districts under the provisions of the Glackin Law itself. There is considerable room for improvement and further amendments may be necessary to bring about district institutions under the provisions of the Glackin Law with a tax not to exceed a mill and a half on each dollar of the assessed valuation and with each county properly represented on the trustees of any such institution which might be built.

In July, 1938, provision was made by the General Assembly for the issuance of bonds by counties that have passed the Glackin Law and desire to procure money immediately to build a sanatorium. Lake, Vermilion, La Salle, and St. Clair counties took advantage of this amendment. The fact that it was not possible to issue bonds prior to 1938 for building purposes might have had something to do with the fact that no sanatoriums were built for a period of years.

In May, 1939, the General Assembly passed another amendment to the Glackin Law validating elections in relation to county tuberculosis sanatoriums providing those elections were in accordance with the provisions of the law. They also passed amendments validating certain tax levies which have been made.

In 1939, they further amended the Glackin Law so that taxes raised, if properly voted, are not included in any limitations for taxes fixed by law or which may later be fixed by law.

It is hardly possible to place enough emphasis on the fact that there are many pitfalls of a legal nature which face any county planning to vote and bring into effect the Glackin Law. Therefore, as Dr. Hullerman said, any county considering this matter should ask for help either from the Illinois Tuberculosis Association or the Illinois State Department of Public Health. A postal card addressed to the Illinois Tuberculosis Association requesting a copy of the Clackin Law with all of its provisions and amendments will receive a prompt reply. Petition forms, suggested resolutions and suggested ballot forms will be sent on request to any county. In conclusion, from the facts presented by Dr. Hullerman, the following points should be emphasized:

1. In the northern and central thirds of Illinois (excluding Cook County) the problem of providing additional sanatorium beds is not as important as the problem of securing earlier diagnoses of cases of tuberculosis.

2. In the southern third of Illinois efforts to procure adequate tuberculosis sanatorium facilities must be pushed as hard as efforts to procure the earlier diagnosis of cases.

3. It appears that all counties should pass the Glackin Law and levy a tax not to exceed one and one-half mills on each dollar and administer that tax fund in accordance with the provisions of the law under properly appointed boards of trustees having on them medical representation.

4. Efforts should be made to procure federal or state aid for building, not including the maintenance of several moderate sized tuberculosis sanatoriums properly situated in the southern part of the state; these institutions to be maintained by the counties using the facilities of such sanatoriums with funds collected in accordance with the Glackin Law.

S. M. Miller, M. D., Peoria: There are many sanitaria that are well administered and there are others in which the administration is not good and in which patients do not receive adequate treatment. While the Glackin's Act provides for the erection and maintenance of sanitaria and the care of tuberculous individuals, its essential purpose is the control of tuberculosis. In some communities, commissions operating under the Glackin's Act carry effective control programs. In others the control programs are ineffective.

Under the provisions of the Glackin's Act, Boards of Control are local self-governing bodies. A further amendment to the Glackin's Act is to be considered; an amendment giving to the Illinois Department of Public Health direction and supervision of local tuberculosis programs as administered under the provisions of the Act, thus coordinating the tuberculosis program of the Illinois Department of Public Health with local programs.

CARDIOVASCULAR AND SYSTEMIC MORBIDITY FOLLOWING HYPERPYREXIA IN CENTRAL NERVOUS SYSTEM SYPHILIS

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The treatment of central nervous system syphilis generally includes some form of hyperpyrexia

Read before Physicians' Association, Department Public Health, Illinois State Medical Society, May 21, 1940, Peoria.

followed by or in conjunction with heavy metals and arsenicals. In spite of the fact that various forms of hyperpyrexia have been in use, artificial malaria, as originally introduced and recently re-evaluated by Wagner VonJauregg[1], continues to be regarded by most authors as the method of choice.

At the Elgin State Hospital malaria and typhoid vaccine fever treatment are at present being used in the treatment of general paresis. Patients who are in good physical condition and who do not present any evidence of cardiovascular involvement are treated with malaria, while all colored patients and those debilitated physically are treated with typhoid vaccine.

Though we were not primarily concerned in this paper with the end results, as far as mental improvement is concerned, malaria did not seem to be definitely superior to typhoid vaccine in this respect. However, final evaluation can be made only after more time has elapsed, since many authors have indicated that typhoid remissions were not as long-lasting as malaria, and relapses more frequent.

The reason for introducing other forms of fever therapy than malaria was the fact that malaria is drastic and has a marked debilitating effect on the patient. According to Neymann[2], the death rate, unless a critical selection of patients is made, varies between 10% and 30%. Most authors, especially Kessler[3] and Wile[4], agree that the danger of malaria therapy is the severe myocardial damage that occurs.

This study was undertaken to evaluate the general systemic and cardiovascular changes consequent upon the use of malaria and typhoid fever therapy, and if possible to set up objective criteria for a more rigid selection of patients to be so treated.

Methods and Materials: Of a total of 173 patients treated within the past 12 months, (of whom 115 were with psychosis), 65 were treated with malaria; 50 with typhoid fever; 39 with both malaria and typhoid, and 19 cases were treated with a modified technique of typhoid fever vaccine therapy.

Chemotherapy was administered in all cases concurrently with fever therapy, and consisted of heavy metals and tryparsamide unless contraindicated. Typhoid vaccine fever therapy was administered according to the Nelson divided dose technique used here for four years. The intravenous dosage varied from an initial one of 10×6^6 organisms to 1000×10^6 organisms, (and repeated two hours later), an average maximum dose being $300\text{-}400 \times 10^6$, which affects an average of 1-2 fever hours over 103° F. per paroxysm. More recently the authors have adopted a triple dose technique wherein the number of fever hours is equivalent to an average of three per paroxysm, obtained by administering a third dose two hours after the second one. In this manner, whereas 10-20 hours of fever was obtained throughout a course of 8-10 paroxysms, with this modification a total of 30-40 hours can be achieved.

A tertian strain of malaria, used here constantly for six years, patient-to-patient transmission, was utilized, the incubation period varying from twenty-four hours to ten days, the interval between paroxysms varying between 24 and 38 hours. The average duration of fever hours over 103° varied between 5 and 9 hours per paroxysm, taking into account that the initial paroxysm varied in duration from 6 to 36 hours of 103° and over the average therefore more properly evaluated as 4-7 hours per paroxysm.

Management: Absolute bedrest (as best could be maintained), maintenance of adequate fluid intake, nutritional standards adhered to, including high caloric, high vitamin diets plus high caloric interval feedings, feosol and Blaud's pills, general tonics, and the use of insulin in 5-10 unit doses one-half hour before meals if necesary to improve appetite.

MEANS OF EVALUATION:

A. Clinical. All patients on admission were given complete physical examination, controlled by two physicians, special emphasis being directed to the cardiovascular apparatus. During the course of treatment, blood pressures were independently recorded in all of 173 patients at least twice daily; temperature, pulse and respiration were recorded every two hours during the afebrile period, hourly during the febrile period, and 15-30 minutes in temperatures over 105°. Daily blood pressures were taken for ten days after the completion of fever.

B. Laboratory. Complete blood counts and differential studies were performed before and after fever therapy in 45 cases. Three lead electrocardiograms were taken in 43 cases, varying from 2 to 18 in any one case and recorded before,

during the various phases of the temperature curve and after the treatment at various intervals up to nine months in many cases. Flat x-ray plates before and after therapy were taken at a two meter distance in 20 cases; this procedure was later discontinued in favor of fluoroscopy because of the former's unreliability in the diagnosis of early aortitis. Fluoroscopy with barium meal investigations in the various oblique views was performed in 84 cases and was considered indispensable in the diagnosis of early aortic involvement.

According to the fluoroscopic findings in 84 cases, patients were placed in three cardiovascular categories: Group A. Comprising 37 cases with no roentgenological evidence of cardiac involvement (44%); Group B those with uncomplicated aortitis, comprising 46% of the cases and Group C those with complicated aortitis (regurgitation or aneurysm), comprising 10% of the cases. The diagnosis of uncomplicated aortitis (Group B) was made when the following findings presented themselves, according to Kurtz[5]: sagging of the ascending aorta to the right with pulsation visible to the right of the sternum, increased density and tortuosity permitting visualization of the descending aorta. The diagnosis of aortitis in our series of cases could therefore be made fluoroscopically in a total of 55% of the cases. This compares favorably with Stokes'[6] 53% and Moore's[7] 39%, while at autopsy Moore indicated that 70 to 90% presented a picture of syphilitic aortitis in varying degrees. The diagnosis of aortitis is therefore chiefly a fluoroscopic one. The clinical findings like abnormally loud A_2 or Tambour sound, systolic murmur over aorta, systolic roughening over aorta, systolic murmur at apex, rough mitral first sound and wide base on percussion were only found in 31% of our cases in Group B. Only six patients in all those studied presented cardiovascular subjective complaints, two of whom were in Group C, four in Group B. These cases obviously cannot be adequate representative because of the element of psychosis.

RESULTS:

1. *General Systemic Changes:* (A) Malaria — During the course of treatment and up to three weeks following the interruption of malaria, the patients displayed a loss of from five to twenty pounds in weight, profound asthenia, occasional jaundice, increased susceptibility to various forms of infections, urinary retentions and fecal impactions, and a markedly prolonged convalescence.

Blood studies indicated a decrease of hemoglobin to levels as low as 45-50%, with corresponding anemia. The bone marrow was so severely depressed that the white count did not respond to infections; for example, in one patient who developed a widespread bronchopneumonia, only repeated injections of reticulogen was effectual in producing a satisfactory leukocytosis with ultimate recovery.

(B) Typhoid. During the course of typhoid vaccine fever treatment and thereafter, the patients gained weight; while jaundice, asthenia, and susceptibility to respiratory and other infections were conspicuously absent. Urinary retention developed in five patients and was satisfactorily relieved by simple catheterization.

Blood studies indicated either no change in the hemoglobin and C.B.C. in the majority of cases; or, in a few others, there was a slight depression of the hemoglobin, not exceeding 5-10% of the control. The R.B.C. and W.B.C. quite often indicated a slight rise. In all cases excess hyperpyrexia could be easily controlled by simple body-cooling procedures. Convulsions occurring during the paroxysm were more easily controlled than those occurring during malaria.

(C) Combined malaria and typhoid was used in those patients in whom either the malaria strain prematurely ceased to produce further paroxysms (in 32 out of 39 cases); or in patients in whom, because of the exacting effect, the malaria fever had to be interrupted (in the other seven cases). After a period of rest of from one to four weeks, the patient could be restarted on a course of typhoid vaccine. The morbidity and mortality in this group were chiefly those incidental to malaria.

(D) Modified form of typhoid vaccine fever therapy: The triple dose technique was introduced by us in order to increase the number of fever hours and to stimulate the response of the reticulo-endothelial apparatus. The systemic effect was similar to that of the Nelson method with the exception of a more marked decrease in blood pressure.

2. *Cardiovascular Changes:* (A) Malaria:

The general effect was for the blood pressure to drop at a rapid rate with the drop in temperature following a paroxysm, and to remain so for 48 hours, becoming progressively lower with every paroxysm, and resulting in a fixed hypotension that might endure for at least 1-3 weeks following completion of treatment. Systolic levels in the 60's and 70's were not uncommonly noted. Those in cardiovascular Group A. showed a drop of 24-36 points in B.P. following every paroxysm, while those in Group B. showed more profound and often perilous drops of 30-45 points on the average. The return to the control level, in contrast to that seen in typhoid, was very gradual and required weeks of convalescence. Only a few cases presented no change in the blood pressure. In eight patients who developed edema of the ankles, seven had been malaria treated and were in Group B., one in Group C. (treated with typhoid), the edema appearing in from two weeks to five months after completion of therapy.

Cardiac collapse requiring emergency treatment occurred in two cases of Group B; no cardiovascular mortality directly ascribable to malaria has yet occurred.

Electrocardiographic changes of the following nature were noticed: marked progressive lowering of R voltage with slurring and notching, extrasystoles, flattening of the T waves with later inversion, left axis deviation, S-T deviations, and presence of U waves. These became most conspicuous at the height of the fever, but in many cases also remained so in the interval period. In 28 of the 43 cases studied intensively by electrocardiograph, the myocardial changes (65% of the cases) continued to remain for from two weeks to as high as nine months; while 15 cases (or 35%) showed transitory changes, related to the fever, which disappeared within a few days to one week. Conspicuous was the increased damage noted in cases of Group B. as contrasted with cases of Group A. (It is obvious that no cases of Group C. were treated with malaria.) In contrast, Burnett[8] showed definite changes in the E.K.G. of only 18% of his cases, but stated that the duration and significance of this had as yet not been determined.

B. Typhoid. The blood pressure drop was almost negligible in Group A., and ranged from 10-26 mm.Hg. in Group B, returning very quickly to its normal level. Whenever there was a significant drop in blood pressure, one could suspect the existence of uncomplicated aortitis. Seven patients in Group C. showed drops from 10-52 points in systolic blood pressure, but there was also a quick return to normal. Edema occurred in only one case (Group C).

Electrocardiographic changes indicating myocardial damage occurred in 41% of the cases, but showed an improvement to normality within 8-12 weeks, the majority of these patients being in Group C, while transitory, insignificant changes occurred in the remaining cases. No instances of cardiac collapse occurred during the course of treatment.

C. Combined malaria and typhoid. The hypotension here was related to the effect of malaria and was not aggravated further by the typhoid. One case in Group A. had residual changes; 7 in Group B. had profound changes; while no changes were seen in three of Group A. and one in Group B.

D. Modified form of typhoid vaccine fever therapy: — In 18 cases treated with this modification, those of Group A. showed practically no change in blood pressure, while those of Group B. showed drops of pressure varying from 16-50 points, in keeping with a markedly increased number of fever hours.

No E.K.G. studies had as yet been made in this preliminary series.

3. *Morbidity and Mortality:* A. Malaria: Four patients died during or immediately following treatment: two of them during convulsions, one from severe intestinal hemorrhage and one from a facial cellulitus. Six patients died from five weeks up to six months after discontinuation of treatment; inanition, bronchopneumonia and convulsive state were the causes listed. Many patients were susceptible to upper respiratory, urinary and skin infections, and in three cases intestinal hemorrhages were observed. The total mortality during malaria fever in 65 cases was 6%, amongst which not a single instance of myocardial death was noted.

B. Typhoid. Death occurred in three cases, two of bronchopneumonia and one of acute bacillary dysentery during the course of treatment. Another patient developed hematuria, cystoscopic examination revealing a few hemorrhagic areas which disappeared in the course of

one week. In fifty cases treated with typhoid, the above represents a mortality of 6%, but it should be remembered that most of these patients were treated with typhoid vaccine because the risk was too great for malaria.

4. *Serological:* Examination of the spinal fluid from within ten days to one month after cessation of fever therapy showed a decrease of total proteins and cells, occasional change in the colloidal gold curve and decrease in the Ross Jones and Pandy. After six months to one year, reversal or decrease in the strength of the complement fixation reaction was seen, a further decrease in the cells, Ross Jones and Pandy, total proteins, and a flattening of the Lange curve. These same changes were noted regardless of the form of hyperpyrexia used.

Comment. Our results show that malaria fever produces a profound, generalized effect on the patient manifested by increased morbidity and mortality, severe anemia, marked depression of the granulocytic response to infections, and a markedly prolonged convalescence. Most severe and prolonged are the changes seen in the cardiovascular system, in the form of hypotension and persisting electro-cardiographic disturbances. While Krusen[9], Ritter and Volker[10] found only a decrease in the amplitudes of the electrocardiogram and thought that fever was not especially harmful to the heart, we on the contrary found the changes in the E.K.G. to be much more severe; these not only concern the decrease in the amplitudes, but also very definite T wave changes, axis shifting, S-T deviations, and slurring and notching.

We agree with Kessler[3], Wile and Hund[4], who recently reported similar changes to ours and also feel that malaria has a drastic effect on the cardiovascular apparatus.

In contrast to this, typhoid vaccine therapy is found to be less exacting, the changes are less marked and less prolonged. Hypotension and changes in the electrocardiograph are usually only temporary and quickly return to normal. Although, as far as percentages in mortality are concerned, no marked difference was noted in our material between malaria and typhoid, it should be recalled that the mortality in the typhoid series was limited only to patients in Group C (complicated aortitis), patients who never would have been considered otherwise suitable for malaria.

It is therefore essential to have a rigid selection of cases for fever therapy on the basis of a careful evaluation of the cardiovascular apparatus with particular emphasis on the fluoroscopic findings. These criteria should be well-defined and rigid to permit an adequate evaluation; in this manner the risks taken in malaria treatment will be minimized. In our opinion the following criteria have proven to be of value.

1. The cardiovascular apparatus should not show any evidence of damage either clinically or, which is much more important, fluoroscopically. Patients in Groups B & C (aortitis) should not be treated with malaria since in our opinion irreversible damage occurs.

2. Patients should be in good general systemic condition.

3. We have found that if the blood pressure decreases between paroxysms to less than 70% of its original systolic basal level, the situation is deemed desperate and requires interruption of the malaria. Electrocardiograms must be taken before the institution of treatment and after the fourth chill as, in our experience, this procedure has been a valuable adjunct in evaluating myocardial insufficiency and averting frank or impending collapse. It is self-evident that in malaria therapy adequate support must also be given to the hemopoietic system; iron compounds, reticulogen, high caloric feedings, and vitamins are essential.

If the rigid criteria outlined above are applied, a large number of patients will have to be treated with typhoid vaccine, for which therapy the criteria do not have to be as rigid or as severe. We have thus treated without any permanent ill-effects, patients in Group B & C, and also those otherwise physically debilitated.

According to our findings, the changes in the cardiovascular system are much milder and not as long lasting. The blood pressure usually returns to its basal level within 12 hours. As a guard against any too great damaging effect, in typhoid therapy, of cases in Group C, it has been found expedient to administer the chills every 7 to 10 days. At least one should wait until the blood pressure returns to its basal level within 24 hours. In some patients of Group C in whom the risk would seem to be too great, we administer heavy metals for a period of three months prior to the induction of typhoid fever vaccine therapy.

In those cases treated with combined malaria and typhoid, although the vaccine fever itself did not seem to especially aggravate the changes resulting from malaria, it was also deemed expedient to wait for 2 to 3 months following interruption of malaria therapy before any further fever was administered.

In borderline patients in whom an increased number of fever hours would be desirable, and where there may be some question about the risk, administration of a triple dose technique of typhoid has been used and has proven of considerable value in these respects.

CONCLUSIONS:

1. General systemic and cardiovascular changes were studied in 173 cases of C.N.S. lues treated with hyperpyrexia.

2. Malaria is a very rigorous and debilitating form of treatment and is suitable only for patients in good physical and neurological condition and who have no fluoroscopic evidence of aortic involvement. (Group A.)

3. Typhoid vaccine treatment is less drastic, attended by lesser morbidity, is more easily controlled and can be safely administered to patients with aortic involvement.

4. The triple dose technique of typhoid administration is offered to increase the number of fever hours without the attendant drastic effects of malaria.

5. Emphasis is made on careful cardiovascular and general systemic evaluation with special emphasis on fluoroscopic diagnosis and careful E.K.G. and B.P. studies during the course of treatment.

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DISCUSSION

Dr. B. Hilkevitch, Chicago: I have listened to this paper with much satisfaction because it represents a careful study of an important problem — that of reducing the appalling morbidity and mortality of neurosyphilitic patients undergoing malarial therapy. For the greater part I agree with the essayist's statements but several points need elaboration.

The fluoroscopic diagnosis of the uncomplicated and complicated luetic aortitis is not at all easy. The criteria for its diagnosis is as follows: a dilatation of the aorta particularly of the ascending portion; a fusiform dilatation is pathognomonic. This is visualized by the presence of a shadow to the right of the sternum in an unbroken line of the entire aortic shadow. The presence of marked pulsations of these increased shadows makes the diagnosis more probable. The increased density of the aortic shadow is another diagnostic feature. However one must bear in mind that in many individuals of short and stocky stature the diaphragm has a high position; the aorta may appear dilated to the right of the sternum and may pulsate. This is especially true in the older age group where a hypertensive and arteriosclerotic aortitis is present. On the other hand in tall and slender individuals with a low position of the diaphragm an actual dilatation of the aorta may be masked. The increased density of the aortic shadow is an important diagnostic point in young individuals up to forty years of age. In people after the forty year group and particularly after the fifty year age group an increased density of the aortic shadow is not uncommon without a mesoaortitis luetica.

The diagnosis of complicated luetic aortitis — those with an aneuerysmal dilatation — is chiefly a fluoroscopic problem. However the fluoroscopic diagnosis of an aortic regurgitation is a very difficult one and at the best only a suggestive one. The presence of a pulsating shadow to the right of the sternum with an enlargement of the heart of a typical aortic configuration would suggest such a diagnosis. However one must remember that in 20% of uncomplicated mesoaortitis luetica there is an enlargement of the left heart sometimes of a marked degree. For this reason the diagnosis of an aortic regurgitation ought to be and is in fact a clinical one. Fluoroscopic evidence is only of secondary importance. It also should be remembered that an experienced roentgenologist may fail to make a diagnosis in 15-20% of advanced cardiovascular lues.

I want to stress the fact that in making a diagnosis of cardiovascular lues one should use all diagnostic methods — a good history, a careful clinical examination and x-ray studies. Dr. Lieberman is often at a disadvantage because an intelligent history is difficult to obtain in his type of patients. Although the basis of a diagnosis of cardiovascular lues in Dr. Lieberman's series is chiefly a fluoroscopic one, I am impressed that the incidence is only a conservative estimate.

Cardiovascular damage produced during malarial therapy should be determined clinically, however the electrocardiographic changes may be an important adjunct in these evaluations. Many of the electrocardiographic changes are probably due to the extreme debility, severe secondary anemia and long confinement in bed of these patients.

Reviewing the causes of death resulting from malarial therapy, it is surprising to note that the incidence of cardiovascular deaths is insignificant.

In conclusion: — I should like to ask the essayists if there is a concurrent drop of the diastolic blood pressure in his patients who showed a considerable drop of the systolic pressure following malarial therapy. If there is a drop of the systolic pressure only, one could attribute it to myocardial weakness. If a drop in both systolic and diastolic pressure is present, there is possibly a more complicated mechanism at play. The factors of debility, anemia and long bed rest are possibly not insignificant contributory points in the lowering of the blood pressure.

Dr. Walter R. Kirschbaum, Manteno: I have used malaria for twenty years and I agree with all the conclusions Dr. Lieberman has made but there are two points I would like to make.

First concerning the deaths from malaria. There are three causes: 1. The brain affection by the malaria plasmodia which occlude the smaller brain arteries and capillaries producing thrombi, hemorrhages, etc. 2. Myocarditis and heartfailure. 3. The general septic stage involving all the bodily organs. These causes of death may be combined. I will not underestimate the importance of the exact examination of the cardiovascular system before and during the treatment. But in spite of the fact that about 60 per cent. of the paretics show more or less marked alterations of the aorta, there can be said that in post mortem examinations the changes of the aorta were not the primary cause of death or rare only. I found that most of them were deaths in consequence of vasomotor collapse and this collapse, central in origin, occurred relatively frequently but is not due to myocarditis or aortitis. It is interesting that some cases with relatively good aortas die in spite of their good heart and aorta from vasomotor collapse or other complications, originated by the septic stage in which the malaria organism is the cause. The high percentage of aortic lesions found in all the paretics may be counted as contributary cause of death in general and the danger for an average paretic to die from the aortitis is relatively small.

With reference to the typhoid vaccine treatment: This treatment may be used in patients only not apt for malaria. For deteriorated cases malaria is dangerous. Malaria treatment has to be used right in time and as early as possible. Its mortality rate is then about 5 per cent., the curative effect very high depending on the material of patients and the experience of the physicians.

Dr. A. A. Lieberman, Elgin (in closing): I feel it a privilege to have had Dr. Hilkevitch and Dr. Kirschbaum discuss this paper.

We had only a few autopsies available and in every one there was a septic complication, either dysentery or bronchopneumonia, etc. Examination of the myocardium did not reveal anything particularly specific for malaria; the changes were widespread.

Another point I wanted to bring up is that state hospital cases of cardiovascular lues seem to fall into a category all their own. This may be changed in the future along with an educational campaign, but in our cases it is our impression that these patients are generally in worse condition physically, neurologically and mentally than the average patient who is seen in the clinic or at home for treatment of lues. Most of our patients are debilitated in every way so that the risk is much greater. We have not emphasized this sufficiently but we think there is a definite correlation between morbidity and cardiovascular status. We have found that in patients with no x-ray evidence of disease there was less morbidity and mortality and fewer complications in general. Although young people with no complications and in good condition have occasionally suffered collapse, in general there is a definite correlation between aortic involvement and morbidity and the possibility for increased morbidity and increased physiologic changes are thereby increased. There are more electrocardiograph disturbances and susceptibility to infections, which we think are due to the result of malaria per se, which in addition to hyperpyrexia may produce an obscure toxin.

There is a question about the diastolic blood pressure dropping. We have indicated that there is a correlation. The pulse pressure appears to have increased, especially as we go up in the cardiovascular category. There will be a physiologic increased pulse pressure as a result of hyperpyrexia alone. That does not infer a myocardial damage or change because the effect of dehydration may also increase the pulse pressure a good deal. The only changes in the typhoid series were very high diastolic pressures and these were seen only in the group where there is a complicated form of aortitis.

I want to emphasize our general impression that the state institution patients as a whole, whether voluntarily admitted or admitted on committment, are in worse general condition than the similar type of patient treated in the outpatient department of a clinic.

The human brain is like a freight car—guaranteed to have a certain capacity, but often running empty.—*Boys' Life.*

As the departing geranium said to the bright red rose, "I'll be zinnia!"

MODIFICATION OF THE USE OF TYPHOID VACCINE IN THE PRODUCTION OF HYPERPYREXIA

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That typhoid vaccine has been used as a means of producing fever in the treatment of neurosyphilis in those patients who are resistant to malaria or who are in poor physical condition is common knowledge. Shortly after the introduction of typhoid vaccine for the production of hyperpyrexia, Cowie and Calhoun[1] pointed out that the principles underlying the production of hyperpyrexia with malaria and with dead typhoid bacilli are essentially the same, that is a reaction to a foreign protein. Despite the demonstration of a similar etiologic factor being responsible for the hyperpyrexia, malaria has been considered preferable by most investigators on the basis that the temperatures obtained by it were higher and more sustained than those obtained with typhoid vaccine. Using the usually adopted single dose method, McKenzie[2] treating 30 patients reported temperatures up to 107° F. the average being 103° F. Schlem[3] reached a maximum temperature of 101.5° F. Kunde, Hall and Gerty[4] obtained temperatures varying from 102° to 104° F. On some occasions, all investigators have had to use enormous doses to reach the higher temperatures. It remained for Nelson[5] in 1931 and Driver and Shaw[6] in 1933, to demonstrate a more effective use of typhoid vaccine administration. Nelson suggested that the typhoid be given in coupled or doubled doses, "the first dose given at any selected time and is of a size calculated to cause a slight fever, the second is given during the height of the fever produced by the first, usually at the end of the 2nd and 3rd hour. The second dose seems to have the effect of exploding the charge supplied by the first." Driver and Shaw, unaware of the work done by Nelson, also used the divided dose method in a series of 21 cases with excellent results. In the publication of Nelson[5] and Driver and Shaw,[6] no definite schedule was established as a standard dosage scheme. In Driver's and Shaw's[6] paper, examples of amount of bacilli

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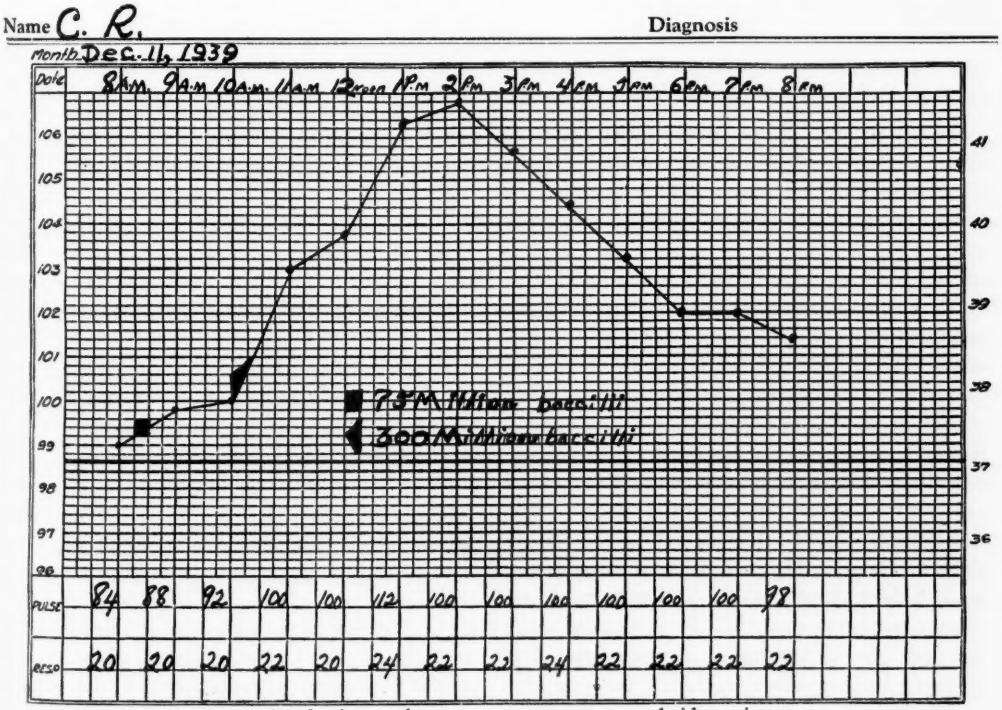

A sample of a better than average response to typhoid vaccine.

used showed that the first and second dose was equal. No mention was made of the results of the vaccine in the production of fever in the entire series of cases. Isolated case reports were given illustrating examples of satisfactory fever elevation with the double dose method. The schedules for the three cases illustrated showed variation. No mention for the basis of the dose variations in the individual patients was made. It would seem that any therapist wishing to adopt the method of Nelson or Driver and Shaw, would of necessity, have to follow the trial and error method of establishing his own therapeutic schedule.

At the Chicago State Hospital, typhoid vaccine has been used extensively. Several factors influenced the choice of foreign protein as a means of production of hyperpyrexia. Many of our patients were colored and, hence, resistant to malaria; others were in poor physical condition so that malaria would have been dangerous. The single dose method as used by the previously mentioned investigators, was adopted when therapy with typhoid bacilli was first instituted. Because of the enormous dosage of typhoid needed and the fact that the temperature elevations were frequently low, this method was found unsatisfactory.

Desiring to obtain temperatures above 103° F. for good therapeutic effects as suggested by Kirby,[7] Winslow, Miller and Noble[8] and unaware of the work of Nelson or Driver and Shaw, one of the authors suggested the use of a divided dose. Various doses were experimented with by the trial and error method until a definite schedule of typhoid vaccine administration which has been successful in raising the temperatures above 103° F. in 85.43% of the 801 times it was used, was worked out. Basically, the principle underlying the suggested schedule is that of Nelson and has already been stated. However, the modification offered by the authors is a definite expanding dosage schedule which uses a larger second dose following the first vaccine administration. The second dose is usually given two hours after the first if the temperature has not risen above 103° F. If the thermometer reading approximates 103° F. two hours after the first dose is administered, the second dose as given in the schedule should be somewhat modified.

Using the expanding dose method as illustrated in the proposed schedule and not once deviating from its suggested dosage, we have tried to induce hyperpyrexia in a group of 74 patients eight hundred and one (801) times. The results were as follows:

Suggested schedule for typhoid vaccine administration.

TABLE 1

1st day —	20	million bacilli	followed by	50	million
2nd day —	30	million bacilli	followed by	100	million
3rd day —	50	million bacilli	followed by	175	million
4th day —	75	million bacilli	followed by	300	million
5th day —	125	million bacilli	followed by	450	million
6th day —	150	million bacilli	followed by	600	million
7th day —	175	million bacilli	followed by	800	million
8th day —	225	million bacilli	followed by	1000	million
9th day —	300	million bacilli	followed by	1500	million
10th day —	400	million bacilli	followed by	2000	million

TABLE 2

Temperatures	108 — 109° F.	1 or	0.12%
Temperatures	107 — 108° F.	7 or	0.87%
Temperatures	106 — 107° F.	39 or	4.86%
Temperatures	105 — 106° F.	151 or	18.85%
Temperatures	104 — 105° F.	279 or	35.16%
Temperatures	103 — 104° F.	201 or	25.57%
Temperatures	102 — 103° F.	80 or	10.20%
Temperatures	101 — 102° F.	31 or	3.85%
Temperatures	100 — 101° F.	8 or	0.99%
Temperatures	99 — 100° F.	4 or	0.49%

As may be seen from the above table, 678 times or 85.43% of the expanding reinforced dose administration method was successful in raising the temperature to 103° F. or above. The temperatures obtained ranged from 99° F. to 108° F. with an average rise of 103.90° F. for all the patients. In most instances, the hyperpyrexia was fairly well sustained, ranging from one 1, to eight 8, hours of readings above 103° F. with an average period of three and one-half (3½) to four (4) hours. (See graph.) Temperature, pulse and respiration readings were taken every hour. No ill effects or complications were noted in the entire series of cases as a result of which hyperpyrexia could be induced daily without a rest period in between, thus shortening the hospitalization period materially. The most frequent complaint noticed was that of a headache which would be relieved by an ice bag. Chills occurring usually within the first hour following the first dose administration were treated by regular nursing technique.

CONCLUSIONS

1. A group of patients were studied as to the best method of typhoid vaccine administration in the production of hyperpyrexia. An expanding dose method consisting of small primary

doses followed by larger number of dead bacilli given at the height of the fever produced by the first was found to be most satisfactory.

2. A definite dose schedule is offered by the authors. The suggested schedule was successful in raising the temperature to 103° F. or above in 85.43% of the times it was used. The average temperature reached in this series of 74 patients was 103.90° F.

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SURGERY IN SYPHILITICS

WITH A STUDY OF CASES IN MENTAL HOSPITALS

104 CASES REPORTED

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The surgeon, in consideration of a patient for operation is keenly interested in the prognosis. He is desirous of knowing the probable outcome and the complications that may be expected. This prognosis may be modified by other existing conditions or processes. Thus, a minor operation, may, in an individual in a poor physical condition, carry a grave prognosis. One of these factors, syphilis, is considered in this paper and an attempt is made to determine the surgical risk of these patients. What is the probable outcome of a surgical patient complicated by an existing luetic infection? The question arises, in the presence of a syphilitic infection as to whether elective surgery should be performed, cancelled or postponed until specific therapy is given. Morbidity as well as the mortality rate should be estimated. The possibility of wound infection, poor healing, evisceration, and gumma formation must be considered. The recollections from our classroom and clinic days are that operative results in luetic patients were poor, mortality and morbidity were high, wounds healed slowly and non-union frequently occurred in fracture cases.

The incidence of syphilis in patients in the Illinois State Mental Hospitals varies between seven and twelve per cent. Thus, to the physicians here present who are engaged in medical work in the mental hospitals, it is important in the consideration of patients for operative procedure to be able to estimate the risk in cases of early and latent syphilis, systemic and neurosyphilis, as compared to individuals free from this complicating factor.

From a ten year surgical experience in mental hospitals, it has been a clinical observation and impression, that luetics, not only systemic but also neurosyphilitics, with involvement of brain and spinal cord, undergo operative procedures with only a slight increase of risk as compared to the non-luetics. In order to confirm or correct this impression a study was made of the literature and a survey of the operative cases covering a two year period at two mental hospitals.

Mortality: In 1925, Goeckerman,[1] reporting on the operative procedures of 78 syphilitics at the Mayo Clinic, noted a mortality rate of 3.8%. In conclusion, he stated that luetic patients who have received specific therapy can be operated on with impunity and that individuals with an infection of long duration are on the whole poor surgical risks, but only in proportion to the damage their tissues have sustained. Thompson,[2] in 1926, stated that old syphilitics whose tissues have been damaged, particularly the cardiovascular apparatus, are poor surgical risks. He further adds that the cardiovascular apparatus of most old luetics is damaged. Scheffey,[3] in 1931, reported on a seven year study of a gynecologic service. In 972 cases with negative Wassermann reactions, the mortality rate was 2.5% while in the 92 cases with positive Wassermann reactions (one, two, three and four plus) the rate was 4.3%. Homans,[4] in his text-book of surgery,

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states, "the presence of syphilis seldom contraindicates an operation, for the syphilitic only becomes a poor risk when damage to vital parts of the body is advanced, and he is no poorer risk when damage is done by syphilis than by other diseases." Keidel[5] reports that occasionally lues may play a large role in increased operative and post-operative mortality. Early cases should be operated on, after chemotherapy has been started. If syphilis is over two years duration it may be ignored if the physical condition of the patient is good. In the presence of cardiovascular or central nervous system syphilis, the surgical risk may be seriously modified. Wile,[6] in 1934 and again in 1938, presented interesting articles on this subject. He concluded that the mortality rate is not increased in the early cases if surgery is delayed, if possible, for a few days until treatment is initiated and then continued post-operatively, and in the old cases if there is a history of specific therapy. In contradistinction, Maes and McFetridge,[7] in 1936, reporting on a negro male surgical service stated that this disease made the patient a very poor surgical risk and attributed a large part of the death rate, on the service, to lues.

A survey was made of the operations performed during the past two years at the Elgin State Hospital and the Chicago State Hospital. Chart 1 lists the total number of operations and the mortality rate.

1. TOTAL NUMBER OF OPERATIONS AND MORTALITY

	No. Operations	No. Deaths	% Deaths
Non-Syphilitics	818	30	3.66
Neurosyphilitics	78	5	6.41
Systemic Syphilis	26	0	0.00
Unknown (Not Tested)	75	3	4.00
Total	997	38	3.81

A total of nine hundred and ninety-seven operations were performed at these two institutions during the past two years with a mortality rate of 3.8%. The non-syphilitics had a rate of 3.6%, the neurosyphilitics, chiefly cases of syphilitic meningoencephalitis, had 6.4%, and the systemic syphilitics no death rate. In the group listed "Unknown (not tested)," the majority of which was composed of employees, no Wassermann or Kahn tests were made. Deducting this last group, leaves a balance of 922 operations performed on mental patients.

In Chart 2 the cases are divided into major and minor surgery. In the 606 minor cases, one death occurred in an old man subsequent to drainage of an ischiorectal abscess. The mortality rate for major surgery is high but one must remember that the majority of these operations were performed on mental patients, many of whom were uncooperative, frequently getting out of bed in spite of all precautions, removing drains, dressings and contaminating their wounds. Arp[8] recently reported a mortality rate of 10 to 16% in major operations in mental patients. In major surgery the death rate varied from 0% in the systemic syphilitics, to 9.2% in the non-syphilitics and 19.2% in the neurosyphilitics.

2. MAJOR AND MINOR SURGERY AND MORTALITY RATES

	MAJOR			MINOR		
	No. Operations	No. Deaths	% Deaths	No. Operations	No. Deaths	% Deaths
Non-Syphilitics	324	30	9.25	494	0	0.00
Neurosyphilitics	26	5	19.23	52	0	0.00
Systemic Syphilis	13	0	0.00	13	0	0.00
Unknown (Not Tested)	28	2	7.14	47	1	2.12
Total	391	37	9.46	606	1	0.16

These figures of the syphilitics were subdivided in Chart 3 into the various fields of surgery for further analysis. Five deaths occurred in the neurosyphilitics; two were due to peritonitis in cases of perforated appendices with abscess formation; one, two weeks post-operatively, after an exploratory laparotomy with findings of miliary tuberculous abscesses; one due to a bronchopneumonia after a hydrocoelectomy and one due to cardiac failure and bronchopneumonia after an emergency enucleation of an eye for a pan-opthalmitis, in a poor surgical risk. In the last two cases the hydrocoelectomy and enucleation it appears that syphilis was a contributing factor toward the poor physical condition of the patients and their deaths. In the first three cases, the two perforated appendices with abscesses and the miliary tuberculous abscesses and peritonitis, the prognosis would be poor in any patient and syphilis contributed little, if any, toward these patients' death. The authors believe that only in two cases, syphilis was a definite contributing factor.

It is interesting to note that 30 rectal and 28 gynecological operations were performed with no deaths.

3. TYPE OF OPERATION AND MORTALITY

	Neurosyphilis		Systemic Syphilis	
	No. Operations	No. Deaths	No. Operations	No. Deaths
(a) General Surgery				
1. Intraperitoneal	13	3	4	0
2. All Other	14	1	1	0
(b) Gynecological	17	0	11	0
(c) Rectal	25	0	5	0
(d) E.E.N.T.	3	1	2	0
(e) Thoracic	3	0	0	0
(f) G.U.	2	0	3	0
(g) Orthopedic	1	0	0	0
Total	78	5	26	0

Morbidity: Next, let us consider the morbidity, the healing of wounds, incidence of infection and probability of local and systemic complications. Mondonca,[9] in 1918, reported that syphilis may delay wound healing and reported three abdominal operations in which the wounds opened and healing was markedly delayed. Menninger[10] in reporting 22 cases of syphilis, stated that difficulty was encountered in 72% of the cases. Gellhorn,[11] in 1929, mentioned three luetic cases in which the wounds broke open. Wile[6] stated that in the early active syphilitic without treatment slow healing and sloughing may occur and the luetic infection may be disseminated. Likewise in old latent cases with a poor history of therapy, sloughing, non-healing and gummatous syphilides may develop post-operatively.

In contrast, Goeckerman[1] states that wounds of these patients heal satisfactorily, yet stressed the need for specific therapy. Thompson[2] listed 26 surgical cases without any increased morbidity. Scheffey,[3] comparing 92 gynecological patients with positive blood Wassermanns against 92 non-luetic patients with similar operative procedures, noted that the complications were the same in both groups, about 26.5%. Stokes in discussing Scheffey's paper states, "The door has been closed on the old bugaboo that an operative wound in a patient with syphilis should not heal. This occurs, only if a gumma is incised." Homans[4] and Keidel[5] report similar observations.

To determine the morbidity in the luetic and non-luetic patients a careful detailed study was made of 306 consecutive surgical cases in one of the mental hospitals. Chart 4 lists the number of operations in each group and the percentages of local and systemic complications. The local complications, the greater number of which were wound infections, were highest in the neurosyphilitics and lowest in the non-syphilitics. Delayed wound healing occurred in three non-luetic mental patients and in one neurosyphilitic. No gumma formation was noted in the total 104 luetic cases studied. The systemic complications consisted of respiratory infections, cystitis, pyelitis, thrombo-phlebitis, peritonitis and parotitis. One neurosyphilitic of the 28 listed developed a pyelocystitis giving a percentage of 3.5%.

4. SURGICAL COMPLICATIONS

	No. Operations	% Local	% Systemic
Non-Syphilitics	268	14.1	2.6
Neurosyphilitics	28	25.0	3.5
Systemic Syphilis	10	20.0	0.0
Total	306		

Therapy in Relation to Surgery: Most authors stressed pre-operative and post-operative specific chemotherapy, particularly in the early cases. The patients were divided into (1) recent cases of less than two years duration and (2) latent cases, and into those with or without previous adequate therapy. In emergency surgery, in recent cases, with a history of no treatment or poor treatment it was suggested that the operation be delayed, if possible, until one injection of neoarsphenamine was given. In elective surgery, in recent cases, all authors recommended specific therapy prior to operation, varying between three to four injections, to a combined complete course of neoarsphenamine and bismuth or mercury, with continuation of treatment during the post-operative and convalescent period. These recommendations were made, not only for the benefit of the patient, but also for the protection of the surgeon for many cases have been reported of the operator contracting this disease during surgical procedures. In the latent cases some authors stated that surgery need not be deferred for therapy, while others recommended a three or four week period of treatment with neoarsphenamine in conjunction with bismuth or mercury, if there is a poor background of specific therapy.

In the 104 luetics reported, in this paper, no treatment was given immediately prior to operation and only in one case during the post-operative period. All of the cases had, however, at least a course of combined chemotherapy during their institutional stay. In some of these mental patients, the specific therapy was given as long as five years prior to surgery. The neuro-

syphilitics had records of previous fever therapy combined with chemotherapy of tryparsamide and mercury. The danger of neoarsphenamine or arsphenamine in patients with cardiovascular or hepatic syphilis should be emphasized. They should be placed on bismuth or mercury, in conjunction with potassium iodide for at least six weeks before the arsenicals are administered. Luetics with marked hypertension should be similarly treated and arsenicals used with caution.

Summary and Conclusion: 1. A survey was made of 997 operations performed during the past two years at the Elgin and Chicago State Hospitals. The surgical results of 104 patients, consisting of 26 cases of systemic syphilis and 78 cases of neurosyphilis were compared with 818 non-syphilitic patients.

2. There were no deaths in the cases with systemic syphilis. The mortality rate in the neurosyphilitics was higher than the rate in nonluetics. In three of these five deaths, however, syphilis did not appear to be a contributing factor, operations being performed for conditions carrying a very grave prognosis. In two, syphilis appeared to be a contributing agent. The mortality of neurosyphilitics was higher according to the statistical survey yet, after analysis of the causes of death the surgical risk of neurosyphilitics seemed comparable to the non-syphilitics.

3. Local surgical complications were higher in the neurosyphilitics but these were chiefly in the nature of wound infections. Difficulties in wound healing, as sloughing, evisceration and gumma formation were not encountered. Excluding infections, wounds of syphilitics heal as well as the non-syphilitics.

4. If there is a history of adequate specific therapy in the past, emergency and elective surgery can be performed on syphilitics without additional treatment or delay.

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THE ROLE OF NEUROSYPHILIS IN DISTURBANCES OF "ANAL SPHINCTER TONE"

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Many divergent views have been expressed in regard to disturbances of "anal sphincter tone." While some claim loss of sphincter tone is due to neurosyphilis, others as Buie[1], believe that it rarely is the cause. There are no available data as to the incidence of this condition. Neurological text-books state that loss of clinical anal tone usually occurs. Yaskin[2] and Stokes[3] believe that rectal incontinence in neurosyphilis is a grave symptom. However, very little clinical or experimental work has been done in regard to this problem. Collier Martin[4, 5] in 1904 was the first to describe comprehensively the "ataxia" of the anal sphincter in tabes dorsalis. The only thorough study in recent years is that of Denny-Brown and Robertson.[6] Because of the conflicting opinions, a study was undertaken of patients in the Elgin State Hospital during the years of 1937 to 1939 inclusive, to determine the relationship of neurosyphilis and sphincter tone disturbances.

An understanding of the mechanisms of the anal sphincters and their pathological manifestations is predicated upon a clear conception of the anatomy and neurophysiology of the anal region, as well as the various reflexes involved. The manner in which the anus is kept closed is still the subject of much discussion. This is due to the fact that only recently have the various

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muscles involved been clearly demonstrated. It is believed that the anus is kept closed by the postural tone of three muscles, the external and internal sphincter ani and the puborectalis portion of the levator ani. Further, any factor that would affect the postural tone of these muscles would result in relaxation of the anus and manifest itself by loss of "anal tone." The innervation to these muscles is still in need of further study. The motor and sensory innervation is stated to be derived from sacral nerves 2, 3, 4, and 5, which give rise to the pudic nerve which in turn divides into the perineal nerve to the levator ani muscle and the inferior hemorrhoidal nerve to the external sphincter ani muscle. Also, involved is the lesser sphincterian nerve of Morestin. Complicating this is the supply from the autonomic system. Fulton[7] states that sympathetic fibres to the rectum are collected from the prevertebral sympathetic plexuses into the "presacral nerve" which distributes fibres to the pelvic viscera, and that the parasympathetic

TABLE I

PROCTOLOGICAL CAUSES FOR SPHINCTER DISTURBANCES WITH LOSS OF ANAL TONE

Proctological condition	Degree of Tone Loss #	##	###	Totals
Fecal Impaction	10	20	5	35
Prolapsing Internal Hemorrhoids	12	13	4	29
Pruritis Ani	2	8	6	16
Ulcerative Proctocolitis	0	5	2	7
Prolapse Rectum	0	2	4	6
Carcinoma of the Rectum	0	0	3	3
Federasty	0	0	3	3
Third Degree Tear from Pregnancy	0	0	2	2
Post-operative Injury to sphincter	0	0	1	1
TOTALS	24	48	30	102

TABLE II

NONSYPHILITIC NEUROLOGICAL CAUSES FOR SPHINCTER DISTURBANCES WITH LOSS OF ANAL TONE

Neurological Condition	Degree of Tone Loss #	##	###	Totals
Hemiplegia with Cerebral Arteriosclerosis	4	5	6	15
Alcoholic Psychosis	0	8	2	10
Epilepsy with Psychosis	3	4	0	7
Organic brain disease, undifferentiated	1	2	1	4
Multiple sclerosis	0	1	2	3
Post-traumatic Psychosis	1	2	0	3
Chronic Epidemic Encephalitis	0	1	2	3
Paralysis Agitans	0	2	0	2
Little's Disease	0	1	0	1
Without Psychosis, Neurological	3	0	1	4
TOTALS	12	26	14	52

FIGURE I

ETIOLOGIC GROUPINGS IN CAUSATION OF ANAL TONE LOSS

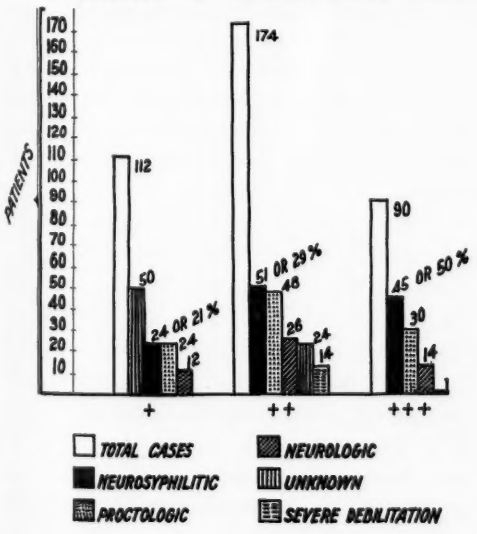
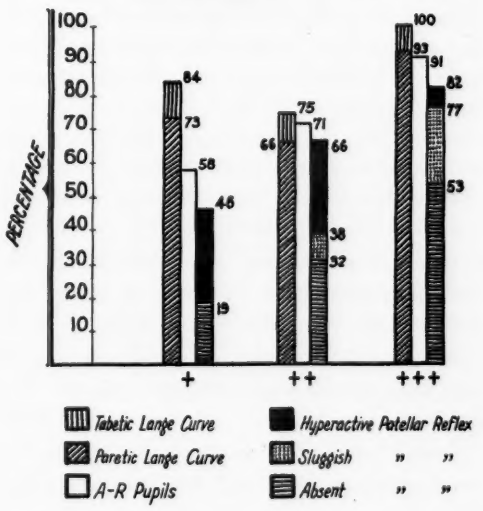


FIGURE II

CORRELATION OF LANGE GOLD CURVE-PUPILLARY AND PATELLAR REFLEXES



supply to the rectum is found in the pelvic nerves arising from sacral levels 2, 3, and 4.

Clinically, sphincter muscle reaction may be determined by introducing the finger into the anal canal.[8, 9] According to Sherrington, stretching the muscle is one way of testing its postural tone. However, when performing a digital examination, several reflexes come into play: the anal skin reflex and the stretch reflex of the anal muscles. This latter reflex or "myotatic reflex" was first described by Liddell and Sherrington,[10, 11] who stated that the only sensory nerves responsible for the reflex were those arising in the muscle itself. Further, they proved experimentally, that the tension in the muscle was active and not passive, severance of the posterior nerve roots destroying it. Normal anal tone is maintained by a reflex originating in the mucosa of the rectal wall according to Denny-Brown and Robertson. They have shown this reflex to be entirely local in nature, the ganglion cells in the rectal wall initiating the motor impulses which produce a reciprocal relationship between distention of the rectal wall and relaxation of the anal sphincters. Thus, diminution of tone or a complete relaxation may be due to a loss of this latter reflex; to a destruction or degeneration of motor nerve fibres causing muscular atonicity as in any other lower motor neuron lesion; to an interruption of the anal reflex arc in its sensory component; or to disturbances in the parasympathetic and sympathetic nerve system.

We are primarily concerned here with the effect of neurosyphilis on anal muscle tone. The depreciation in muscular response (or activity), depends upon the amount of syphilitic involvement. It is believed that the chief pathological changes responsible for this condition are chronic inflammation of the posterior spinal ganglia and of the posterior nerve roots between the ganglia and the spinal cord. To some extent meningeal reactions and degeneration of the columns of Goll and Burdach may be responsible. Neurosyphilitics presenting evidence of rectal distention were excluded from this study.

Of the 6,150 patients examined, changes in anal tones were noted in 376 or 6.1%. In none of these patients was the neuro-psychiatric diagnosis known prior to the digital and proctoscopic examination. Anal tone was graded as follows: 1-plus, in which some loss of anal tone was detected on digital examination; 2-plus, in which the anal canal was sufficiently relaxed to permit reintroduction of the proctoscope (¾ inch in diameter) without employing the obturator; and, 3-plus, in which a completely relaxed and patulous anus was observed (i.e., on separating the buttocks, the anus opened widely).

One hundred and two (27%) of the three hundred and seventy-six patients presented evidence of disturbed muscular tone due to local pathology, such as fecal impaction and prolapsing internal hemorrhoids (see Table 1). Fifteen patients (4%) had anal tone loss resulting from severe debilitation. In 76 (19%) no cause could be ascertained. In 175 (39%) some neurological involvement of the central nervous system was observed and the majority of these patients (125) were neurosyphilitics. (See Figure 1).

The incidence of neurosyphilis in a psychiatric institution is usually much higher than that of any other type of neurological disorder. (See Table 2). Of the 480 neurosyphilitics studied, 125 (25%) showed some loss of anal sphincter tone. Our findings are in marked contrast to that of Buie, who has rarely found loss of anal tone to be due to neurosyphilis. The significance of syphilis as an etiological factor becomes pronounced when it is noted that 45 of 90 patients with patulous ani (three plus tone loss) are neurosyphilitics. Thus, it is apparent that a patulous anus should be regarded with suspicion and sufficiently important to make a thorough proctological and neurological examination mandatory.[12] As might be expected, this condition as we found it occurred in taboparetics and was probably due to an involvement of the posterior roots leading to impairment of the anal skin reflex and of the stretch reflex in the anal muscles.

Careful neurological examination revealed absent achilles, patellar reflexes, or pupillary changes in 85% of the patients with complete atonia. Of the remaining 15%, only five patients who could be examined after two years residence at the hospital, showed definite signs of early tabes dorsalis, indicating the importance of the preliminary rectal examination. At that time, there was no other indication of posterior root involvement. A suggestive correlation may be

noted on the Lange gold curve findings of the spinal fluid, the pupillary and patellar reflexes, and the degree of anal tone loss (Figure 2).

The importance of an objective determination of the sphincter tone is further emphasized by the fact that only eight out of 480 neurosyphilitics complained of rectal incontinence. Further, a proctological examination may indirectly indicate whether urinary disturbances in the early stages of neurosyphilis are of mental or posterior root origin by the simple expedient of determining anal sphincter tone. The number of patients with complete loss of anal sphincter tone due to neurosyphilis was 45 or 50%, which compares favorably with the 43% of patients with tabes dorsalis, who had early bladder disturbances reported by Stokes. He did not allude to the incidence of rectal disturbances in his cases. However, before arriving at a diagnosis of syphilis, one should carefully exclude local causes.

The question arises as to whether or not a slight degree of anal tone loss may be considered evidence of a definite neurosyphilitic involvement. We are not convinced that a 1-plus change on digital examination is significant, in as much as the possibility of error is too great. However, seven of fifteen patients classified as 2-plus on their first examination developed patulous ani in from several months to two years. Surprisingly, only ten of our neurosyphilitics had anal sphincter spasm, presenting evidence of local pathology.

Rectal crises, i.e., hyperpathic zone, was found in only three patients which is in conformity with the observations of Stokes and others.

We think that these observations may be of interest, both to the neuropsychiatrist and proctologist, because the subject of anal tone and its diagnostic possibilities has been much neglected.

CONCLUSIONS

1. Of the 6,150 patients examined in the Elgin State Hospital during the years 1937 to 1939 inclusive, 376 or 6.1% were found to have some loss of anal tone. Of these latter, 27% were due to proctological disturbances, 14% to non-syphilitic neurological conditions, 19% to no apparent cause, and 4% to severe debilitation.

2. One hundred and thirty-three or 35% of the 376 patients with anal tone loss were found to have neurosyphilis.

3. Further, of the 6,150 patients examined, 480 were neurosyphilitic. Hence, 28% of the neurosyphilitics examined had disturbances of anal tone. However, in only 25% was the relaxation due to involvement of posterior nerve roots.

4. Complete atonia may be an early sign of tabes dorsalis.

5. Rectal crises are a rare phenomenon, occuring in only three of our patients.

6. Complete loss of anal tone demands a careful neurologic and proctologic investigation.

DISCUSSION

Dr. B. Barker Beeson, Chicago: I do not think there is much left for me to say, although I might say something from the standpoint of syphilis because Dr. Pickett will touch upon the surgical side. I think this subject is very worth while. It is interesting to note that most of the studies along this line have been done in this country. The European surgeons, during the years when syphilis was diagnosed clinically, were afraid of operating upon the syphilitic. Some of the surgeons said that a syphilitic should not be operated upon at all. With the present diagnostic refinements those conditions have passed away.

There are three propositions to be considered in every case: the type of syphilis, the amount of treatment he has had, treatment in early syphilis and before operation, if possible, and followed up later on. However, operation in early cases is sometimes followed by normal healing.

I have knowledge of a patient who was operated upon for a tumor of the abdomen and the thing healed. Much to the surgeon's surprise the patient developed a roseola and went to someone else and was told that this was a case of syphilis.

I know of a man who gave no history of syphilis at all and who had what was thought to be tuberculosis of the lymph glands. He was treated surgically. Unfortunately, no serologic study was done and the man went along and these glands were incised and did not heal. Finally he was seen and my first impression was that it was a tuberculosis. He had lost weight and ran an afternoon temperature. A Wasserman was done and it was strongly positive. Then to be sure, a guinea pig was inoculated and this was negative. Under antisyphilitic treatment he made a remarkable recovery. This shows what may happen when an operation is done upon something that is syphilitic, and treatment has not been given. This man's case was proven to be congenital syphilis.

I have heard of another case which was operated upon for some liver condition. The surgeon made the incision and it looked like a malignancy and he gave no antiluetic treatment. He ran through the slides and considered it a sarcoma. Then they decided it was syphilis and it did not heal for a long time until antisyphilitic treatment was given. She had a recurrence of this gummatous hepatitis some years later.

I have enjoyed this paper very much and I think it should be a stimulus for more work of its kind.

Dr. William J. Pickett, Chicago: I agree with Dr. Wiltrakis that syphilis and surgery in the ordinary sense of the word are not a problem. Whether a man has syphilis or has been treated has little to do with the outcome of the case. I think the neurosyphilitic is a problem to the surgeon because we are coming in contact with neurosyphilis involving the abdomen in the sense of abdominal crisis. I think we fail to remember that an individual might have gall stones, gastric ulcer or duodenal ulcer or pancreatic disease and still have neurosyphilis. The fact that he has gall stones does not always mean that the pain is caused by the gall stones. Many a surgeon has been chagrined to find that cholecystectomy does not control the symptoms and that the patient still has pain and vomiting.

A year ago I saw a young man who was still in the hospital after a cholecystectomy. The wound had healed but the man still had pain around that region of the abdomen and still vomited. A cursory examination revealed fixed pupils and no patellar reflexes. We felt the condition was a syphilitic one and treatment was given with success.

Just recently I was embarrassed myself in a case of Chronic Duodenal ulcer. This man, sixty-one years old, had had hemorrhage from a duodenal ulcer and had been under treatment for some time, and x-ray findings were those of an ulcer. Sometime after the hemorrhage the patient developed duodenal obstruction, and vomited. We were able to aspire copious amounts of gastric contents and x-ray showed considerable gastric retention. We did a posterior gastroenterostomy which ordinarily is a thoroughly indicated operation. The patient was comfortable for a week; there was no retention, no vomiting, no pain. Then he got another attack of pain and vomiting. We thought of course he might be devolping retention, so we put in a Wagensteen tube and got nothing on aspiration. He was given sedatives and the same thing happened twenty-four hours later. On careful neurologic examination we found him a case of neurosyphilis and all his gastric colic was not caused by the ulcer but from the neurosyphilis.

In the differential diagnosis or ruling out of a case of neurosyphilis the Wassermann and Kahn tests are of very little help because in most cases these are negative. Also the spinal fluid tests may be of little help, I think a very careful neurologic examination is important because the examiner may often find some change in the reflexes which will lead to a diagnosis.

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RELATIONSHIP OF COUNTY SECRETARY TO THE EDUCATIONAL COMMITTEE

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The interest of the secretary of the County Medical Society is no doubt primarily in the results obtained by his society in the workings of the sub-committee of the educational committee namely the scientific service committee. It is more than likely that most of our county secretaries judge the educational committee by the scientific services of the sub-committee. And this is quite justifiable for this Scientific Service Committee's work is a part and a large part of the service rendered the county medical society by the education committee. Dr. Berghoff whom you have just heard is chairman of the scientific service committee and a good job he and his committee have rendered the state society and the various secretaries during the past year. To most of us I think the name of the Educational Committee immediately brings to our mind the concept of the committee's very efficient, never tiring and charming secretary Miss Jean McArthur — and in fact she *is* the Educational Committee.

You as members of the Illinois State Medical Society may take great pride in the work done by your Educational Committee. I think we are not mistaken when it is stated that this committee has a wider program than that of any other state in our Union. And that it executes its program most efficiently and most economically

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— far more so than like organizations in any other state.

The work of the Educational Committee however is more than that of furnishing programs and speakers for the various meetings of the many county societies who avail themselves of this service. The Committee was originally formed, if we are not mistaken, with the idea of educating the laymen of our various counties along medical lines and in some degree thereby to offset the advertising and propaganda and the erroneous information put forth by various advertising, quasi health institutions, the various cults and organizations perhaps well meaning but misdirected. After a time with the advance of progress in means and facilities of communication the cart almost got ahead of the horse, and it became necessary to add to the duties of the committee. That is, it became quite evident that the physicians themselves were not keeping up with the instruction that the laymen were receiving. Consequently the education of the physician himself, in certain lines, never mentioned in medical schools, became a part of the duties of the educational committee. And today we find the educational committee with duties that directly interest the county secretary, duties and services that are almost as diverse and as heterogenious as are the usual daily activities of a family physician doing general practise in a rural community.

I think I am not overstating the case when it is said that the educational committee desires and is ready to be of assistance, with its trained personnel, its voluminous library and its multiplicity of potential activities to any physician in the various county societies who may desire its services.

Many of you who are county secretaries are aware of the fact that through this committee your county society has been able to bring "to successful conclusion health programs of many lay organizations." And may I bring to your attention the following words of the Committee secretary, Miss McArthur: "The contacts made by individual physicians and county medical societies constitute the most important part of a report of the educational committee whose program would be impossible without their support."

If the public in any particular portion of our state is to be brought face to face with the problems that the medical profession would desire them to be acquainted with, it certainly is the duty of the county medical society to initiate this movement. If this is true, it certainly then is the duty of the society's secretary to bring such a movement to his county and the educational committee stands all equipped and ready to assist him to the nth degree in doing this in many ways.

"Problems facing medicine today are of far reaching importance to the public and for this reason the Educational Committee has endeavored to give correct information to the public and to strengthen ties between the profession and the public."

The medical profession in the State of Illinois is on record as a unit and as individuals that state medicine is undesirable and is not wanted. In other words the physicians desire to control their profession in all its activities. This being the case the office of the secretary of each county society on behalf of its membership must undertake the enlightenment of the laymen of his county on various medical and allied subjects. The educational committee without the help of the local officers and society can not efficiently step into any county and render service of education that will be of any great value, any more than the government can direct "on whom or how" the physician shall practise. We as secretaries must see to it that the educational committee is employed in the right subject in our community. It has become quite usual for various organizations, such as the parent teacher's clubs, the Y.M.C.A.'s, the Womens' clubs, High School principals, etc., to apply directly to the educational committee office for speakers and whole programs to be put on along health lines. And this often without the knowledge of the medical men in their community. How much more the efficiency of such meetings could be increased if the local medical men assisted in the arrangements. In this way and in this manner only can the full development of any laymen education program for any given community be attained.

The Educational Committee encourages the secretaries of the local societies to, in turn, encourage lay organizations and schools to secure speakers from the educational committee's extensive list of speakers for addressing their meetings on medical subjects.

I suspect that there are some secretaries here, in whose towns the newspapers are printing health columns, so-called. I suspect that there are some secretaries here, also who have no idea from whom or where these health articles are obtained by their newspapers. There no doubt are some also who are finding, to their own disgrace, in their local daily papers such columns as the McCoy. And they are still doing nothing about it. The cleaning up of health columns in the local newspapers is just as essentially a part of the medical society's duties to its community as is the cleaning up of a diphtheria epidemic. And the Educational Committee has the antitoxin to use in place of the dangerous health column. The committee already supplies 250 daily, weekly or monthly publications with correctly edited, timely medical articles for use; and these articles before they are used in any way whatever have been prepared with care, and then have been submitted to the various members of the educational committee for their O.K. or disapproval. In such a manner only very little material is likely to filter into print that will not meet with 100% approval by all physicians in the state. Through the county secretaries' office these articles can be made very timely and definite, thereby covering such subjects as may be uppermost in the readers mind. That is for instance articles on measles may be presented during the time in which that community is having an epidemic of measles and not when the laymen is discussing polio or some other topic.

Another service that is available from the educational committee may not be familiar to you all. That is, the *Package library*. Any doctor may secure from the educational committee a package library on any of some 175 different subjects to help him to prepare an address for a laymen group. In addition to this the educational committee also has in this package library, material available to laymen for the same purpose. The nearest contact the individual has to the educational committee is probably through the county society's secretary and it should be through him that the facilities of this educational committee in preparing material for addresses is made available to the individual physician and to the layman.

The arrangement of programs for the meetings of the county medical society very often devolves on the secretary of that county. He very often arranges the meetings with but little time in advance. It has been proven that the meetings can become much more interesting and will attract a larger gathering if the programs are arranged with some thought a long time ahead. The reason for this is quite obvious. Most of the speakers who appear under the educational committee's arrangements are busy practitioners like yourself. Their services can not be picked up on a few days notice. But if sufficient time is allowed, in order that the desired speaker may arrange his work and time, then the educational committee can arrange for any county, almost any program that the county may desire. And this of course is all done without any expense to the county. May I make a plea for Miss McArthur that you as secretary in asking her to arrange such and such a program for your county, may I urge you to give her plenty of advance notice. The educational committee also in many instances handles the publicity concerning these county meetings. Postal cards are sent to the physicians in the county and adjoining community and notices are sent to the newspapers covering the certain district. In fact wide publicity is obtained; but this, again, can only be done efficiently if there has been sufficient advance time for the preparation. The office of the educational committee has found that meetings scheduled as far as four to six months in advance are better handled, both as to personnel on the program, and as to the publicity, and as to increased numbers in attendance.

Another point that is rather self evident and which has been thoroly proven by the educational committee is that the programs of the county meetings can be improved if there has been provision made for the discussion of the main papers, and not to have left such discussion to those who may on the spur of the moment enter into it. That is, whenever possible have local men discuss papers and participate in the programs. If the educational committee furnished an out of town speaker have local men appointed and men who will prepare to discuss the papers and include their names on the programs. This has been found quite beneficial and adds material to the impromptu discussion also.

There are some other activities of the educational committee that are directly in line with

the office of county secretary. For instance the educational committee is constantly looking for men who may be available for addressing lay groups, and men who are preparing papers on medical subjects for scientific meetings. If the county secretary will keep the educational committee advised of "men who can do things," these men will be given plenty of opportunities. "The Educational Committee is anxious to spread its services out so that all counties will have a part in its program."

It is almost needless to mention here, the use of the radio for education on medical topics. However it has been only through the organized efforts of the education committee that radio talks satisfactory to the profession have been heard. The material to be broadcast under arrangement by the educational committee, is first prepared by a doctor. After he has completed the preparation of his article, or dialogue the script is mailed to each member of the educational committee for their approval or alterations. This is done long enough before the scheduled appearance that alteration or correction if advisable may be discussed and attended to. After the script is returned O.K.'d, then the broadcast is heard with the author and the station announcer taking part. The success of this effort is demonstrable in the additional time that has been allowed the educational committee on some of the largest stations in Chicago.

Those secretaries of county societies who are in communities operating a broadcasting station are urged by the committee to cooperate with such stations and obtain time for medical education broadcasting. The committee is able to furnish copies of radio dialogues and talks to be given, but prefers that all such be instituted by the local county medical society and that they be conducted under its control.

If anything may be obtained (from these few minutes) that is of value to those of you who are secretaries I trust that it may be that you will not neglect your duty to assist in the education of the laymen of your community.

The day when we as physicians are just to plod along and practise excellent scientific medicine and do nothing else; this day is past. If scientific medicine is to be practised satisfactorily the laymen must want it. It can not be crammed down their throats. They must be taught many things that pertain to our work — must be taught correctly — and not left to learn of such facts at the bridge club or through some of the propaganda wide spread by the cults.

Harmony among members of the county society is essential to the individual success of the members. Cooperation of the members in lay education will increase the demand for the services of the members in the practice of preventative medicine, as well as in other ways. We then who are secretaries have a responsibility in directing the activities of our county societies. And another duty in acting as the field man for the educational committee, in putting over the program arranged by the state medical society.

Our profession is so thoroughly grounded that if the laymen has some correct knowledge concerning our activities and our possibilities he will put us over in spite of ourselves. And in this perhaps is our greatest weapon against regimentation of the profession.

On behalf of the educational committee may I invite any and all of you to call at the office of our secretary Miss McArthur on the 14th floor of No. 30 North Michigan in Chicago at your convenience. And may I urge you as secretaries, to recognize the relationship you bear to the Educational Committee, and to function as such, more efficiently during this coming year.

HOW THE PUBLIC HEALTH NURSE WORKS WITH THE MEDICAL PROFESSION

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In every other branch of nursing it is taken for granted that the physician and the nurse work together for the welfare of the patient. This same relationship has not been well established in public health nursing, although the rules and regulations for public health nursing provide for it. We hear uncomplimentary remarks from various sources regarding the cooperation between physicians and nurses in public health. For example, a nurse who saw the subject of this paper, "How the Public Health Nurse Works with the Medical Profession," remarked, "Most of the time, they don't!" We

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find that many physicians have the same attitude as the nurse just mentioned.

The relationship between the medical and the nursing profession is recognized by leaders in both groups as the most important factor governing the success or failure of a public health nursing program. One of the great obstacles in the way of proper working relationships between the physician and the nurse, and one that is also a serious handicap to public health nursing, is the variety of interpretation of public health nursing which results in misunderstanding between physicians and nurses.

This is no doubt due to the rapid growth of the public health nursing movement, from the skilled nursing care of the sick in their homes to the present stage of development in which public health nursing is described as "an organized community service rendered by especially prepared graduate nurses to the individual, the family, and the community. This service includes interpretation, application, and teaching of medical, sanitary and social procedures for the prevention of defects, promotion of health, and may include skilled nursing care of the sick in their homes."

Disharmony will surely result if the physician understands that in public health nursing the nurse's responsibility ends in the home when bedside care has been given to the sick, while on the other hand the nurse sees such problems as children being constantly exposed to an active case of tuberculosis, or a prenatal case in the fifth or sixth month of pregnancy who has had no medical supervision, and undertakes to correct the situation.

Let us not overlook the fact that public health nursing is not a new branch of nursing, but one that has developed through the ages, keeping pace with discoveries and advances in medicine which has created a need for this type of nursing service. The discovery of the use of immune serum in the control of measles is an example of creating a need for public health nursing service. Since education of the parents is necessary before the scientific knowledge can be applied to practice, there must be some means of teaching the benefits of the discovery, and influencing parents to seek the treatments for their children.

Team-work is important, and no less so in public health nursing, a branch of preventive medicine, than it is in nursing the sick, a branch of curative medicine. Therefore, the public health nurse who understands ethical public health nursing procedures will not be guilty of promoting the use of any such discovery in preventive medicine until she knows that it is being generally used by physicians and the local medical society has approved a plan of educational work. Proper working relationships will never be established until there is mutual understanding between physicians and nurses regarding the field in which the public health nurse must function, and the principles which govern her in her activities.

Information that would lead to proper interpretation of public health nursing and result in better understanding between physician and nurse is available. It has been prepared by the National Organization for Public Health Nursing, which was founded in 1912 for the purpose of promoting, developing, and standardizing public health nursing. Because this is a community service, with which physicians, nurses, health officials, and laymen are concerned, the activities in which the organization engages to fulfill its purpose are carried on in close cooperation with these groups. All the plans and policies where medical service is involved have been made with the help of leading authorities in the medical profession.

Among the many things that this organization has done for public health nursing, it has compiled and published a Manual to be used primarily by the nurse as a guide in her relationship to the agency employing her, the family she serves, the medical profession, technical procedure, and content of program. This Manual contains the information necessary to bring about more uniform understanding of what public health nursing really is. It has become the guide in public health nursing matters for schools of public health nursing, state departments of public health, and all properly organized nursing services. When the medical profession will use this as their guide in relation to nursing matters, we can hope for a closer bond between physicians and nurses in this field of nursing.

The public health nurse's activities in a community depend largely upon the health problem in which her employing agency is interested. The services may be rendered in a community by means of one or more of a dozen types of programs, built around the health needs pre-

sented by age groups or special health problems. These programs are classified as maternity, infancy, pre-school, school, morbidity, communicable disease, tuberculosis, syphilis and gonorrhea, mental hygiene, orthopedic, industrial and adult nursing service. Medical service is involved in every one of these programs, and the qualified public health nurse expects to work with the medical profession in carrying on her work.

Let us cite a specific instance of how the public health nurse works with the medical profession. We will suppose that a community has had several cases of diphtheria and the local public health nursing organization decides to launch a campaign to immunize children against this disease, a new project for this particular organization. In our Public Health Nursing Manual, we are advised that new projects involving medical service must be planned in close cooperation with the medical profession. It is standard procedure in well-planned public health nursing organizations for the medical profession to cooperate through the medium of an advisory committee appointed by the medical society. The nurse will advise this committee regarding the organization's decision to conduct a diphtheria prevention campaign, and will ask the medical advisory committee to meet for the purpose of deciding upon policies to be observed in the educational work with the parents. The nurse will not be satisfied for the committee to say, as they too often do, "Whatever you do will be all right with us," but will expect the committee to decide what parents may be told regarding such questions as —

1. Age groups that shall be immunized
2. Number of treatments to be given
3. Time that shall elapse between treatments
4. Location and hours where physicians shall administer treatments —
   a. family physician's office — or
   b. in groups at school hospital or other central location
5. Cost of treatments
6. What provision shall be made for those parents who are unable to pay

The medical advisory committee will also be expected to examine the literature and publicity material to be used in the campaign, for scientific accuracy. The nurse will abide by the decision of this committee without further contact with other physicians in the community, because she expects this advisory committee to explain to each physician, either individually or in medical society meeting, the plans and policies that have been approved by their own profession. The nurse is then in a position to plan activities that should result in parents taking their children to the place designated for administering the preventive treatments.

The same principle of guidance and direction by a medical advisory committee applies in all phases of public health nursing. A public health nurse may be carrying on an antiquated program in tuberculosis, of supervising and caring for the advanced case of tuberculosis, but she will not be able to shift her efforts to preventive work until the medical profession helps to plan and will approve a nursing program that conforms to scientific knowledge in relation to control and prevention of tuberculosis. The nurse is a most effective means of educating individuals and families, but she must have definite instructions as to what she shall teach regarding such matters as medical supervision of adults and children who are contacts, general hygiene for the patient, disposition of contacts and cases in the home where proper care cannot be obtained.

In public health nursing, the first essential in working with the medical profession is the properly qualified public health nurse. Next to this is the medical advisory committee to which the nurse looks for guidance in planning new projects, adjusting already established programs to conform to progress in medicine, interpreting the nursing program to the medical profession, explaining and defending ethical public health nursing procedures, all of which will result in mutual understanding of public health nursing work and better and closer cooperation between the private physician and the public health nurse.

A GOOD OLD FASHIONED RIDDLE

Luke had it before;
Paul had it behind;
Matthew never had it;
All girls have it once;
Boys cannot have it;
Old Mrs. Mulligan had it twice in succession;
Dr. Lowell had it before and behind, too,
He had it twice as bad behind as before.
What is it?

[*Answer: The letter "L."*]

ANTIPNEUMOCOCCIC RABBIT-SERUM. ITS RELATION TO THE CASE FATALITY RATE IN LOBAR PNEUMONIA IN THE COOK COUNTY HOSPITAL

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The dispensing of antipneumococcic serum by the State of Illinois in cooperation with the United States Public Health Service begun in January, 1939, permitted its general use in the Cook County Hospital, Chicago.

Serum therapy was started in male medical Wards 45, 55 and 65, in January, 1939. Lobar pneumonia was diagnosed in 160 patients in these wards from January 13, 1939, to July 1, 1939. X-ray confirmation was obtained in 32 cases. Typing was done by the Neufeld slide method, and if not succesful, mouse inoculation was made. Blood cultures were taken routinely. Specific types of pneumococci were found in 136 patients, 85 per cent. of the group. Their distribution is indicated in Table I. The unusually large number of Type II cases, 35.3 per cent., was due to a localized epidemic in shelters maintained by the government for men who were on relief.

TABLE 1

Antipneumococcic rabbit-serum, if available, was administered to all patients who had been ill less than 96 hours. It was also given to a few patients ill longer than four days, usually on the fifth day, the patients having entered the hospital on their fourth day of illness, but the type of pneumococcus not determined until the following day. Ophthalmic and skin tests were made to determine sensitivity. The rabbit-serum was given undiluted, intravenously, at the rate of one cubic centimeter in 30 seconds. The first dose was 2.0 cubic centimeters. The second dose, 30 minutes later, was half the intended total dosage, usually 8 to 20 cubic centimeters. The remainder of the antiserum was given one hour after the first dose. Occasionally the rate of administration was more rapid, as much as 300,000 units in 20 cubic centimeters of antiserum being injected within one-half hour.

This study was made possible by a grant from the Department of Internal Medicine of Rush Medical College.

Rabbit or horse antiserum was the only specific therapy given 47 patients within 96 hours of the onset of their illness. Four of these patients, 8.5 per cent., died. Antiserum was also given to 24 patients ill longer than four days, most of them on the fifth day of illness. Five of these patients died. There were no deaths among the first 45 patients given antiserum. Table 2 is a summary of the results of rabbit antiserum therapy.

TABLE 2

Rabbit antiserum was the only specific treatment, aside from symptomatic remedies as indicated in each individual case, administered to 61 of these patients. It was given to 38 patients within the first 96 hours of their illness, with three deaths; and to 25 patients on their fifth or later day of their infection, with five deaths. Horse antiserum, only, was given to seven patients within the first four days of their illness. One patient with Type VII infection died. The others recovered. One had a Type I infection; two, Type II; two, Type VII; and one, Type VIII. Horse antiserum was also given to one patient sick five days with a Type VII infection, who recovered. Rabbit antiserum and horse antiserum were administered to one patient ill three days with a Type II infection, and to one ill two days, with a Type VII infection. Both recovered.

Eight patients received serum therapy and sulfapyridine. Four died and are included in this report with the serum-treated cases. Three of the fatal cases are in the group given rabbit-serum therapy within the first 96 hours of illness. (see table 3). The fourth fatality was the patient who died from a Type VII infection treated with horse antiserum. The remaining four patients given sero- and chemotherapy with recovery are not included in the serum therapy group because of inability to evaluate the effect of serum therapy in the presence of chemotherapy.

Blood cultures were rarely positive when ordinary culture media were used. In May, special media were supplied by the Pneumonia Commission of Illinois. Using this media, positive blood cultures were obtained more frequently. The incidence of positive cultures of the different types of pneumococci and results of serum therapy are shown in table 3.

TABLE 3

The age of patients has been taken into consideration in judging the effect of antipneumococcic serum therapy. Twenty patients less than 40 years of age ill less than 96 hours were given rabbit antiserum only. Four were given horse antiserum only, and two were given both rabbit and horse antiserum. All recovered. Fifteen patients less than 40 years of age were given rabbit antiserum later than their fourth day of illness, with three deaths. One such patient, given horse antiserum, recovered. Eighteen patients over 40 years of age were given antiserum within the first 96 hours of illness, with three deaths. Three were given horse antiserum, with one death. Seven patients over 40 years of age were given rabbit antiserum after their fourth day of illness, with two deaths.

At least 100,000 units of antipnemococcic serum were given each patient treated with serum. An additional 100,000 units were given to patients over 40 years of age or if the patient appeared gravely ill. A similar amount was given for additional lobe involvement or if the patient had been ill longer than 72 hours. With combinations of these factors, as much as 400,000 units were given a patient in the first dose of antiserum. A second dose of antiserum, usually 100,000 units, was given if the blood culture was positive and the first dose of antiserum had been only 100,000 units. A total dosage of only 100,000 units of antiserum was given 12 patients, and between 100,000 and 200,000 units to 32 patients. The average dosage of antiserum given was 260,000 units.

Three patients were given 400,000 units of antiserum, one of whom died. Five were given between 400,000 and 500,000 units, also with one death. Three were given 600,000 with no deaths. Three received 900,000 units. Two of these patients died.

A critical drop in temperature occurred in 43 of the patients after rabbit antiserum was administered. The temperature was normal in six patients within eight hours; in 17 patients within eight to 12 hours; in 16 patients within 12 to 16 hours; and in four patients within 16 to 24 hours. More gradual decrease of the temperature requiring two days or longer to become normal occurred in the other non-fatal cases.

No serious reaction followed the use of antiserum. There were thermal reactions in five patients after being given rabbit antiserum, and in one after horse antiserum. Twelve patients had serum sickness after rabbit antiserum, one after horse antiserum; and one, after both rabbit and horse antiserum had been injected. They had slight fever, morbilliform rash, and stiff, painful joints. These symptoms cleared up in a few days.

Rabbit antiserum was given to four patients whose sputum contained the socalled "higher" types of pneumococci. One patient had a Type IX infection. He was given 160,000 units of rabbit antiserum on the fifth day of his disease. His temperature dropped from 106.0° to 99.0° in 24 hours, followed by a temporary rise to 103.0° for one day on his 9th day of illness, with a subsequent rapid drop to normal the same day. Two patients with Type XIV infection were given rabbit antiserum. One was given 120,000 units on his second day, with a drop in temperature from 104.0° to normal in 12 hours, and rapid convalescence. The second patient was given 120,000 units on the fifth day and again on the sixth day of his infection. He was much improved generally, but his temperature was irregular between 98.0° and 102.0° for the next seven days, until final convalescence began. Type XVI infection in one patient was treated with 240,000 units of rabbit antiserum on the fifth day with a critical drop in temperature in 16 hours from 105.6° to normal, and rapid convalescence.

There were no complications in any of the patients who were given antiserum and recovered, except four instances of relayed resolution.

Brief résumés of five patients who died after receiving antiserum follow:

F. H., a white male 36 years old, entered the hospital on the 5th day of his illness. He was a vagrant, an alcoholic for many years, had had little food for a week, and no medical care since the onset of his illness. His entire left lung was consolidated and his blood gave a positive growth of Type II pneumococcus. He was given 200,000 units of Type II rabbit antiserum within a few hours after he entered the hospital, but died within an hour after its administration.

J. K., was a 57-year old white male, a chronic alcoholic, whose source of food was from garbage cans. His first symptom, pain in his side, was noticed as he lifted the cover from a can. He entered the

hospital on the fifth day of his illness, with his right lower and middle lobes consolidated, white blood cell count only 2,750, with his blood culture negative. His sputum contained Type II pneumococci. He was given 480,000 units of Type II rabbit antiserum within 24 hours, but died with peripheral circulatory failure 28 hours after entering the hospital.

J. G., a white male, 59 years old, also an alcoholic, entered the hospital on the 4th day of his infection. He had consolidation of his right lower and middle lobes, and his blood was positive for Type III pneumococcus. He was given 320,000 units of rabbit antiserum within ten hours after entering the hospital, but died ten hours later with peripheral circulatory failure.

L. A., a 69-year old white male, entered the hospital on the third day of his illness. He had consolidation of his right lower lobe with Type II pneumococci in his sputum. He had generalized arteriosclerosis, his blood pressure was 84 mm. systolic, 52 mm. diastolic, and his blood chemistry revealed a creatinine level of 4.6 mg. per 100 cc. of blood. He was given 400,000 units of rabbit antiserum within 24 hours after entering the hospital. His temperature dropped from 102° to 99.2° within 24 hours, and remained between 100° and 98° for the next four days, when death occurred, apparently from cardiac failure.

A. D., was a 72-year old white male who had pernicious anemia. His hemoglobin was 60%, R.B.C. 2,800,000, W.B.C. 11,000. He entered the hospital on the third day of his illness with consolidation of his left lower lobe and Type I pneumococci in his sputum. He was given 200,000 units of Type I rabbit antiserum within six hours after entering the hospital. His temperature dropped from 104° to 99° in eight hours, rose to 101° 16 hours later, then gradually fell to 98° in the next five days. It remained normal two days then rose gradually to 105° in the following six days when he died. His pulmonary findings had gradually cleared up and his blood culture continued negative. He was given a blood transfusion and liver extract therapy during this period.

No autopsies could be secured on any of these five fatal cases.

No attempt was made to check the effect of serum therapy by using alternate case controls. There were 89 patients who were not in the serum therapy group. Many of them arrived at the hospital later than the fourth day of their illness. No pneumococcus was found in the sputum of 24 patients. Thirty-nine, or 43.8 per cent. of these 89 patients, died. Twenty-one died within 24 hours of their arrival at the hospital. The remaining 18 deaths represented a 26.4 per cent. case-fatality rate in the non-terminal group of 68 patients given no specific therapy.

Table 4 gives the results in the treatment of lobar pneumonia in the same wards in 1936, 1937, 1938 and 1939. Excluding the terminal cases, there was a case-fatality rate of 36.3 per cent. in 1936; 33.0 per cent. in 1937; 28.0 per cent. in 1938; and 19.4 per cent. in 1939. In 1937, 124 of the patients arrived at the hospital within four days of the onset of their illness; 35.4 per cent. died. In 1938, 109 of the patients were in the four-day group of whom 29.2 per cent. died. In contrast to this mortality, in 1939, there was only an 8.5 per cent. case-fatality in the group of patients who could be given antipneumococcic serum within 96 hours after the onset of their illness.

TABLE 4

The low case-fatality rate 8.5 per cent. in the group of patients given antiserum within 96 hours after the onset of their pneumonia is in keeping with reports of serum treatment elsewhere. Among the more recent reports in which the results of rabbit antiserum administration is described, Horsfall, Goodman and MacLeod[1] had a mortality of 3.7 per cent. in 54 cases; Nissen,[2] 6.2 per cent. in 97 cases; MacLeod,[3] 5.4 per cent. in 74 cases excluding all Type III cases, and 11 per cent. in 100 cases including all Type III cases; and Wood,[4] 14.3 per cent. in 42 cases, some of whom had been ill more than four days. Wood also summarized the results of several available reports on rabbit antiserum therapy regardless of the duration of the infection and found an average case-fatality of 9.3 per cent.

In general the reports of serum therapy in lobar pneumonia include only the results achieved in the groups of patients specifically studied. For comparison with the case-fatality rates in lobar pneumonia in previous years, the reports should indicate the effect the lower case-fatality rates in the groups of patients favorably affected have on the case-fatality rate of all the patients with lobar pneumonia during that period. The variation in the severity of the disease from year to year should also be considered in evaluating the effect of serum-therapy.

During the months of serum-therapy here reported, there was a case-fatality rate of 30 per cent. in lobar pneumonia in the three wards included, only slightly less than in the previous three years. Although either serum therapy or

sulfapyridine was generally used, the case-fatality rate in lobar pneumonia in the entire hospital from January to June, 1939, was 29.1 per cent.

The case-fatality rate for lobar pneumonia in the Cook County Hospital averaged about 35.4 per cent. for the past 28 years. Tice and Herndon[5] reported this figure for the years 1911-1915. One of us[6] found the same rate for the period of 1916-1922. The case-fatality rates for the subsequent years 1923 to July, 1939, have been tabulated by us from a survey of the histories, and the figures have varied from a low of 24.2 per cent (1932) to a high of 48.0 per cent. (1936), with an average of 35 per cent. In 18 of the 28 years from 1911 through 1938, the case-fatality rate was between 30.0 and 40.0 per cent. Table 5 shows the incidence and case-fatality rate in the individual years. There are 24,497 records included in this summary.

TABLE 5

During 1937 and 1938 in the three wards included in this report, 55 per cent. of the patients with lobar pneumonia entered the hospital within the first four days of their illness. There was a case-fatality rate of 33.0 per cent. in this group, accounting for one-half of the deaths due to lobar pneumonia during these years. Serum treatment offers the possibility of reducing by two-thirds the case-fatality rate in this group, or to approximately 10.0 per cent. Forty-five per cent. of the patients entered the hospital on the fifth, or later, day of their illness. Fifteen per cent. of this group were terminal cases, patients so ill that they died within a few minutes to a few hours after arriving at the hospital. They accounted for one-fifth of all the deaths. It is doubtful if any method of treatment will be helpful to this terminal group. The case-fatality rate in the non-terminal group ill longer than four days was approximately 28 per cent., as against a case-fatality of 21 per cent. in 1939 in the serum-treated non-terminal group ill more than four days. Theoretically, with this distribution of duration and severity of infection on entrance to the hospital it should be possible to reduce the case-fatality rate of lobar pneumonia to approximately 20 per cent. in contrast to the average of 35 per cent. in the past.

SUMMARY

The small number of cases in this summary permit only limited conclusions. Both horse and rabbit antiserum administration was commonly followed by a rapid, critical drop in the temperature and general improvement in the clinical condition of the patient, even with the so-called higher types of pneumococcal infection. No case of sensitivity to rabbit-serum was found. Even relatively rapid intravenous injection of concentrated rabbit antiserum produced no immediate serious reactions. Later serum sickness occurred with both horse and rabbit anti-serum, but was never of a serious nature. Although serum-therapy can reduce to a low figure the case-fatality rate in patients arriving at the hospital within the first four days of their illness, such a large percentage of the patients have been ill so long when they enter the hospital, and so many are already in a terminal condition, it is unlikely that the use of serum-therapy alone will reduce the total case-fatality rate below 20 per cent. for lobar pneumonia at the Cook County Hospital.

TABLE 1

INCIDENCE OF SPECIFIC PNEUMOCOCCUS TYPES

Pneumococcus	Total Cases
Type I	33 (25%)
Type II	48 (35.2%)
Type III	14 (10.2%)
Type IV	4
Type V	3
Type VI	1
Type VII	17 (12.4%)
Type VIII	3
Type IX	4
Type XII	1
Type XIV	2
Type XV	2
Type XVI	1
Type XVIII	1
Type XIX	1
Type XXII	1

TABLE 2

RABBIT-SERUM THERAPY

Pneumococcus	Ill less than 96 hours		Ill more than 96 hours	
	Total Cases	Deaths	Total Cases	Deaths
Type I	11	1	7	1
Type II	17	1	6	2
Type III	4	1	1	1
Type IV	1		1	0
Type V	1		0	0
Type VI	1		0	0
Type VII	1		5	1
Type VIII	1		0	0
Type IX			1	0
Type XIV	1		1	0
Type XVI	0		1	0
Total	38	3	23	5

TABLE 3

INCIDENCE OF BACTEREMIA

Pneumococcus	Serum-Treated Cases		Non Serum-Treated Cases	
	Total	Deaths	Total	Deaths
I	4	1	0	0
II	5	1	4	2
III	1	1	2	2
VII	4	2	1	1
IX			1	1

TABLE 4

Wards 45, 55, 65	1936	1937	1938	1939
Total Cases	268	231	172	160
Case Fatality	41%	37.6%	34%	30%
Terminal Cases	20	16	15	21
Non-terminal Cases	248	215	157	139
Case-Fatality Non-terminal Cases	36.3%	33%	28%	19.4%

TABLE 5

INCIDENCE AND CASE FATALITIES IN COOK COUNTY HOSPITAL

Year	No. of Cases	Case Fatality	Year	No. of Cases	Case Fatality
1911	918	38.8	1926	1,020	40.1
1912	493	37.1	1927	1,032	31.7
1913	600	34.	1928	1,672	39.1
1914	597	38.6	1929	907	46.8
1915	331	29.7	1930	899	28.8
1916	500	40.2	1931	840	32.1
1917	1,395	37.6	1932	922	24.2
1918	978	41.1	1933	833	31.3
1919	354	35.8	1934	1,340	40.6
1920	524	38.7	1935	732	40.0
1921	488	26.6	1936	916	48.0
1922	776	37.2	1937	880	37.5
1923	850	35.8	1938	699	34.0
1924	1,066	32.5	1939 (Jan. 1-July 1)	473	29.1
1925	1,124	35.3			
		TOTAL NO. CASES		24,497	35.4

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PERIDURAL ANESTHESIA IN GENERAL SURGERY

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The peridural block method is another milestone added toward the goal of perfect and ideal anesthesia. The idea is not new, but recently it has been rejuvinated.

In 1885 J. Leonard Corning of New York injected cocaine epidurally. In 1901 Cathelin produced caudal epidural anesthesia by injecting cocaine through the sacrococcygeal notch. In 1904 Einhorn perfected novocain. Sterzi, in 1905, described the peridural tissues. Läwen in 1910 popularized caudal epidural anesthesia. He injected the anesthetic through the sacrococcygeal membrane into the sacral canal and forced it up around the end of the spinal dura. Ten years later in 1920, Fidel Pages, a young Spaniard, discovered that peridural tissues could be infiltrated by lumbar and thoracic puncture and so anesthetize the abdomen and the chest.

In 1928 Heldt Maloney discovered that there is a negative pressure in the epidural space, but it remained for Alberto Gutierrez of Buenos Aires to show in 1933, how this phenomenon could be used in locating the peridural space.

In 1930 Dogliotti, an Italian surgeon, showed how to locate the peridural space by the spinal needle method using salt solution and how to produce anesthesia. He reported his work before the Italian Surgical Congress in 1931, and a year later read a paper on this subject before the American Congress of Anesthetists. In 1934 Harger of Chicago, reported 150 cases based on the method of Dogliotti, and in 1936 Odom of New Orleans perfected a method of localizing the peridural space and its tissues by means of a glass indicator.

ANATOMY

The peridural space surrounds the spinal dura and contains loose areolar tissue, fat, plexi of veins, arteries and lymphatics surrounding the dura covered spinal nerves. It lies within the spinal canal, is triangular in shape and extends from the foramen magnum to the coccyx. The

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upper end stops at the foramen magnum. The lower end is closed by the sacrococcygeal membrane covering over the sacral hiatus. The inner wall is the meningeal dura which surrounds the spinal cord; the outer wall is the covering of the ligamentum flavum. The cushion of peridural tissues within the bony spinal column extends through the intervertebral foramina, surrounds the spinal nerves as they run through the foramina and merges with the fatty and fibrous tissues in the paravertebral region outside of the spine. It is widest at the junction between the 2nd, 3rd and 4th lumbar vertebrae and narrows as it runs upward to the foramen magnum. It is smallest at the intervertebral foramina.

A fluid anesthetic injected into the region, say between the 2nd and 3rd lumbar vertebrae, spreads up and down in the peridural tissues from the foramen magnum to the sacrococcygeal membrane, surrounds the dura of the spinal cord, and under pressure passes out through the intervertebral foramina to anesthetize the spinal nerves in the paravertebral tissues. It may extend to the rami communicantes and the sympathetic nerve chain along side the vertebral column. As a result we get a complete sensory anesthesia, but no motor paralysis. The effect on the blood pressure is negligible.

When an anesthetic is injected through the sacrococcygeal membrane into the epidural space, it usually surrounds the distal end of the dura and goes out through the 2nd, 3rd and 4th sacral foramina. It anesthetizes the 2nd, 3rd, and 4th sacral nerves and the coccygeal plexus, but does not rise high enough to anesthetize tissues up to say the umbilicus, but results in a typical saddle type of anesthesia.

TECHNIQUE OF PERIDURAL BLOCK

Patients who are not suitable for general anesthetics or who could not stand a spinal, i.e., ruptured ectopics, or patients in shock can be given a peridural without endangering their lives.

PREOPERATIVE MEDICATION

We give 3 grains of nembutal the night before the operation, 3 grains of nembutal one hour before the operation and 1/8 to 1/4 grain of morphine sulphate, depending on the age and weight of the patient, 1/2 hour before the operation. The purpose of this is to allay fear and anxiety of the patient and decrease any convulsive effect that the anesthetic might have.

The patient is placed on his side. The thighs flexed on the abdomen and the legs flexed on the thighs, the anteriorsuperior spines of the ilium are directly beneath one another at right angles to the table. The shoulders are in a similar position. This prevents a corkscrew angulation of the spine. The back is now surgically prepared. It is scrubbed with soap, water and alcohol, and painted with an organic mercurial-like tincture of merthiolate 1-1,000. The area is draped with sterile towels. The assistant now flexes the head on to the chest and arches the back.

Using a fine hypodermic needle attached to a 2cc. syringe filled with Novocain solution, a wheal is raised between the 2nd and 3rd lumbar spines exactly in the center. A No. 22 flexible, short bevel spinal puncture needle is attached to a 10 cc. syringe filled with sterile normal salt solution. Using pressure on the plunger of the syringe the needle is pushed in the mid-line at right angles to the long axis of the spine, through the skin wheal, the subcutaneous fat, the supraspinous ligament into the interspinous ligament. When the end of the needle is within the interspinous ligament it is almost impossible to inject any salt solution, because the ligament is tough, fibrous and doesn't give way. The injection is cautiously continued until the needle point passes through the ligamentum flavum and then suddenly when the needle point enters the peridural tissues the plunger is easily depressed, the salt solution is easily injected. Do not push the needle forward any more because you may enter the subdural space. Aspirate; if no cerebrospinal fluid or blood returns you are ready to inject the anesthetic agent. The end of the needle is in the peridural space or tissues.

The syringe is disconnected and filled with 7.5 cc. to 8 cc. of 2% novocain in normal salt solution or of 1½% metycain. This is injected through the spinal needle into the peridural tissues. The syringe is disconnected, the stylet placed within the needle and five minutes is allowed to elapse. During the five minutes the patient is observed to see his reaction to the anesthetic agent. He is tested out with a needle for anesthesia of the legs and asked to wiggle his toes, to see if by mistake a subdural anesthetic has not been given. If this mistake is made the

needle is pulled out and the patient operated upon as though he were given a spinal anesthetic.

If after five minutes no anesthesia of the toes or ankles has been established 38 to 40 cc. of 2% novocain or 1.5% metycain is injected into the peridural space, injecting 10 cc. at a time. If a higher anesthesia is desired, say up to the nipple line, the anesthetic solution is injected faster and with a little more force. If a low anesthesia is wanted as for an appendix or hernia a slower injection with less force is used. Gravity may be used to help diffuse the anesthetic up or down or on one side or the other. The patient may be put in the Trendelenburg or Fowler's position as needed.

After 15 minutes the anesthesia is established and will last 1 to 1½ hours. With this method the patient may be anesthetized from the suprasternal notch to the toes, without an appreciable sustained drop in blood pressure. There is no motor paralysis. The patient can move the toes and legs. It is strictly a sensory anesthesia.

The patient recovers from the anesthetic, farthest away from the injection first, i.e., in the perineum, then lastly at the site of injection.

REACTIONS

If the patient is sensitive to novocain, use metycain. Nupercain is not used because it is a quinine derivative and may be capable of heart injury. Pontocain is ten times as toxic as novocain. Percain is the same as nupercain. 2% Novocain is more toxic than 1% novocain, but 1% novocain is not as effective and gives poor results because it penetrates the nerve sheaths with difficulty.

The dose of novocain used is about 1,000 mg. A combination of 500 mg. of novocain and 100 mg. of pontocain may be used for sustained anesthesia. The greatest amount of novocain that may be injected according to Braun is 2,000 mg. However, that depends on the rapidity of absorption.

In the peridural tissues the absorption is quite rapid. If the anesthetic is pushed too fast, the patient goes into a partial shock as manifested by pallor, cold sweat, weakness, nausea and vomiting. This does not last long and is quickly corrected by a few whiffs of oxygen or aromatic spirits of ammonia.

One case developed convulsions which lasted five minutes. I believe the novocain got into the circulation. These reactions are not nervous or psychic but are toxic in nature and occur more frequently with greater doses and faster absorption. They can be avoided by a more careful application of the principles of peridural anesthesia.

DISADVANTAGES AND CONTRAINDICATIONS

Local infection at the puncture site or disease of the vertebra, bony deformity, tumors of the spinal cord, distortion of the spinal cord, operations on the skull, operations in children and in hypersensitive individuals may be classed as contraindications. Patients subject to psychic pain, who are very much annoyed and terrified by being operated upon while awake, should not be given a peridural.

If the surgeon is busy and 20 minutes cannot be spared as in the large clinics, where so many operations are turned out per hour, this method may not be an advantageous one.

ADVANTAGES

Peridural block may be used by a general surgeon without waiting for a specially trained anesthetist to run a gas machine. It is an economical, fireproof anesthetic easily mastered. No new instruments are needed. It is safer than spinal anesthesia because the anesthetic cannot spread to the bulbar region and produce a bulbar paralysis. No cord injuries, meningitis or encephalitis occur. No late headache, nausea or vomiting. No dysuria. It lasts longer than a spinal. There is no motor paralysis or motor anesthesia. There is practically no sustained fall in blood pressure. No multiple punctures are used. No distortion of tissues from local infiltration and no delayed healing from the anesthetic. It can be used in patients with cardiac or pulmonary disease, as well as those in shock from ruptured ectopics, perforated intestines from gunshot wounds and ulcers, and in patients who are poor spinal risks, or who cannot take a general anesthetic. It has no effect on the liver, lungs, heart or kidneys and is used in the poor risk patients.

In short it has all the advantages of a spinal anesthetic without the dangers and will be adopted as a convenient safe procedure. Its technique will be mastered by an increasing number of surgeons. It will steadily progress in importance and will become more useful when an anesthetic agent is found that has half the toxicity of

novocain with a sustaining anesthetic power twice that of novocain.

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UNUSUAL TWIN PREGNANCY

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Three years ago this twenty-seven year old white woman had a normal pregnancy and delivery, followed by a mild psychosis lasting one year. She recently presented herself after having missed one period. About ten days before the second menses was due to be missed she was seized with generalized abdominal pain and diarrhea. A week later vaginal bleeding for a day preceded the passing of a mass which was examined and found to be the complete product of conception, six to seven weeks old.

Following the abortion, however, abdominal pain continued, associated with diarrhea. Quite abruptly these symptoms subsided, only to recur within a few days. Two weeks from this second onset sharp shooting pains developed in the right upper quadrant, radiating to the right shoulder and back. She was hospitalized for a gallbladder study. The findings were negative; and after three days of comparative comfort she was sent home.

Two weeks after her hospital confinement, and about six weeks after the first pain which preceded abortion, she was again seized with a sudden and severe attack of abdominal pain radiating to the right shoulder, associated with vomiting and diarrhea. Examination revealed a pelvic mass, marked abdominal rigidity, no vaginal discharge, and a temperature of 99 degrees. On arrival at the hospital the hemoglobin was found to be 35 per cent., the red count 3,039,000, and the white count 46,000, with 96 per cent. polymorphonuclear neutrophilles. Diagnosis of pelvic abscess was made.

Blood transfusion was done, and the following morning she was operated upon. A ruptured tubal pregnancy was found. The fetus, about five inches long, was found floating free in the abdomen, attached by its cord to the placenta which was adherent to the greatly enlarged ruptured tube, the ovary, and surrounding small bowel and mesentery. With the exception of a small right pulmonary embolism on the fifth postoperative day, she made an uneventful recovery, leaving the hospital on the eleventh day.

She has remained well during the succeeding three months.

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THE SCOPE OF PROSTATIC RESECTION

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The decade from 1930 to 1940 marked an innovation and transition in prostatic surgery. At the beginning of that period practically all prostatic obstructions were treated by open surgery, either suprapubically or perineally. At the end of the decade transurethral resection had been added to the repertoire of the urological surgeon. There is no uniformity of opinion, however, as to the scope of transurethral resection, and the question is frequently raised as to whether this operation is applicable to all types of prostatic obstruction.

The future trend in prostatic surgery depends directly on the scope of the transurethral operation. The pioneers in this new field had been trained and were experienced in prostatectomy, and it was as judicial as it was inevitable that they should try out this innovation on the smaller prostates while relying on the suprapubic or perineal surgery for the larger glands. The future generation of urologists is, however, being trained in the transurethral operation as an established procedure, and the ultimate scope of resection will depend on their experience.

Adoption of transurethral resection has also been limited by the fact that the technique of no other operation is so difficult to acquire or to demonstrate. No instrument has as yet been devised whereby others than the operator himself can observe the actual procedure. It is only by observing each enlargement of the gland before and after its removal in a large and varied series of cases that a cystoscopist can become a proficient resectionist. To learn otherwise would mean that each succeeding surgeon would of necessity recapitulate the trials and the errors of the pioneers. The transurethral resection requires no more skill or dexterity than many another operation and once mastered it is not difficult to perform. However, the dissimilarity of prostatic enlargements is remarkable and the margin of safety narrow. To remove the gland inadequately is to fail in the operation, and to remove other than prostatic tissue is to do worse than fail. It

is to be hoped that in the future a system of dual lenses will be devised whereby the operative procedure can be observed in its entirety by others than the operating surgeon.

In suggesting what the future scope of the transurethral resection will be it is not the intent to disagree with those who prefer to operate on some or all of their cases by the suprapubic or the perineal route, but rather to answer in the affirmative the frequently asked question as to whether the transurethral procedure is applicable to most prostatic enlargements. Presented in evidence are the operations performed in the first calendar year of private practice with a follow-up review made a year later.

THE GROUP OF CASES is representative. Thirty-two resections were performed on twenty-five patients. No patient was denied resection.

THE AVERAGE AGE of the group was sixty-eight years.

COMPLETE RETENTION OF URINE had occurred in over half of the patients indicating that these were not operations of election but of necessity.

INFECTION OF THE URINE was present on admission in over half of the cases.

UREMIA was present on admission to the hospital in one-fifth of the cases.

STONES IN THE BLADDER complicated two cases. These were dealt with by first removing the intravesicle projections of the medial lobe of the prostate so that the lithotrite could have proper access to the base of the bladder, and then crushing the stone. The balance of the prostatic resection was carried out at a second stage a few days later.

CANCER OF THE PROSTATE was the cause of the obstruction in two patients, one having skeletal metastases at the time of the operation. That patient lived for eleven and one-half months with continuous freedom from bladder symptoms in contrast to his extreme distress before the operation. The other case is active and voiding freely fourteen months after resection.

COMPLICATING DISORDERS were present as follows: Diabetes in two cases, marked hypertension in one, mental senility in three and coronary occlusion with cardiac decompensation in one. In the last instance the operation was divided into two stages, each brief and without upset to the patient.

A FATALITY occurred in one case out of the thirty-two resections performed. If there had been no mortality I would not report the series as typical as the operation is not entirely devoid of risk. Due to a positive Wasserman test we deviated from our usual procedure of a spinal anesthetic and gave a general anesthetic from which the patient failed in two days to regain consciousness.

CONFINEMENT TO BED after the operation averaged 2.2 days. Omitting one case complicated by epididymitis, the patients were up and out of bed on the average of 1.7 days after the operation.

TEMPERATURE ELEVATIONS averaged at their peak 100.6 degrees and subsided rapidly. This lack of postoperative febrile reaction in spite of the fact that over half of the patients came to surgery with infected urine is attributed largely to the use of the Thompson resectoscope by which the tissue is cut with a tubular knife and fulguration limited to the individual blood vessels. The routine use of a two way catheter with a constant drip irrigation of the bladder also served to minimize febrile reactions.

CONFINEMENT TO THE HOSPITAL following operation averaged 8.1 days. Omitting two complicated cases (one with pneumonia and one with epididymitis) the average postoperative stay was 6.6 days. This average was increased by the fact that many patients stayed in the hospital until ready to leave the city.

THE IMMEDIATE RESULTS of the operation were evidenced by the fact that no patient was permitted to leave the hospital until he was emptying his bladder satisfactorily.

RESULTS AFTER A YEAR are that all but two patients are living and doing well (one patient died of pneumonia and another of metastases). The patients were observed in the office at intervals until the prostatic urethra had healed. Urinary infections were treated where necessary. Subsequent inquiry has been made and patients interviewed when possible. All but one patient is voiding to his satisfaction. A patient who had a stricture preoperatively has required subsequent dilatations. There has been no loss of sphincter control, even in the two patients with malignancy.

TWO STAGE OPERATIONS were carried out in seven cases; three being by election (two cases complicated by bladder stones and one by cardiac decompensation) and four of necessity. In the large and vascular glands it is better not to persist too long at one operative session but rather to return the patient to his room in good condition and bring him back in a few days for a second stage. Our custom has been to limit the procedure to 45 or 50 minutes of operating time. A small spinal anesthetic will usually last an hour, thus permitting a few minutes for observation by others before and after the actual operating. At times a spinal anesthetic will wear off distressingly soon which, in the past, has necessitated an extra operative session. Recently we have overcome this difficulty by supplementing the spinal anesthetic when necessary with a little sodium pentothal intravenously and have been very well pleased with innovation. By injecting 3 cubic centimeters of metrazol at the conclusion of such anesthetic, the effect of the pentothal is immediately counteracted and the patient is awake before leaving the operating room.

There are, however, certain prostatic enlargements that cannot be resected in one stage. These are the large soft adenomas of the lateral lobes. At the time of the initial resection, the lateral lobe enlargements are cut back as far as available and the bladder neck appears to be wide open. The patient may, however, be unable to void, and at reexamination a few days later it will be observed that prostatic tissue from farther back in the lateral lobes has protruded into the urethral passage. This tissue is now readily available to the resectoscope and can be cleared away without difficulty and with the assurance that the bladder neck will remain widely opened. In this type of prostatic hypertrophy the two-stage resection is the operation of choice as it maintains to the patient all the advantages of the transurethral procedure while prolonging his hospital stay only by the five days which constitute the optimal interval between stages.

The future trend in prostatic surgery will depend directly on the scope of the transurethral operation. In the first decade of its existence many urologists have not relied on resection in dealing with the larger glands. The purpose of this presentation is to suggest that in the future urologists will find transurethral resection to be applicable to most prostatic enlargements. In support of this belief, a series of unselected cases is analyzed as to the types of risks undertaken, the average postoperative confinement to bed and to the hospital, and as to the results obtained.

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ENVIRONMENT AND THE PATIENT

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CHICAGO

The so-called "horse and buggy doctor" was without many of our modern diagnostic aids, and in this respect we of today often picture him as working at a decided disadvantage. In truth, however, the old-time family doctor, irrespective of what other handicaps he may have had, possessed one distinct advantage which we of today, who practice in large cities and see most of our patients in our offices and in hospitals, do not have. And that was his opportunity for learning certain facts about the patient's environment which often had an important bearing upon his condition. That the physician may not have taken full advantage of this opportunity, or may not even have recognized what it offered him, can be explained by the fact that the intimate interrelation between physical, mental, and emotional factors in disease was not understood in those days as it is today.

But nevertheless the opportunity was there, as it still is for practitioners in rural communities, and small towns today. The physician who visits his patient's home can learn more regarding environmental factors which may be playing a part in the illness than the patient could tell about himself in the physician's office.

Visits to the home afford an opportunity for the physician to become acquainted with the various members of the patient's immediate family, and perhaps his relatives. He can observe for himself any disharmony that may exist between them and the patient. He can learn important facts with regard to their temperaments, moods and habits. He can see for himself what hygienic conditions exist in the home, and can deduce many facts that help him build up a complete picture of the patient. If capable of interpreting what he observes, he can many times place his finger on factors which are playing a part in the patient's illness.

It is my opinion that we city practitioners, because of the necessity we are under for seeing our patients largely in our offices and in hospitals rather than in their homes, must devise some way of obtaining this information about their environments, in all cases where it is required, if we are to make a proper diagnosis. Without such knowledge, we are at a distinct disadvantage. With it, we will find that many puzzling conditions will immediately become clear.

It is not my desire in the present discussion to add confusion to our already overtaxed methods of diagnosis and treatment. It is rather my purpose to point out how a knowledge of the patient's environment may often be a diagnostic short-cut in many conditions, and may assist in lessening recurrences of illness and shortening convalescence.

The literature contains relatively few references to the influence of home environment upon disease.

Dr. Foster Kennedy[1] in an address before the Academy of Medicine, February 11, 1938, states that "the physician is the handy man of the community and should be in a position to advise mothers and fathers." In this sense, he must not be content with merely treating physical symptoms, but must have an understanding of the psychological factors which may be helping to cause them. "It is just as important," says Kennedy, "as giving bromides and will save a lot of it in later life." Later he says: "As physicians, we must broaden our field of responsibilities from a preventative rather than a curative point of view." The eliminating of environmental factors which may lead to physical and mental disturbance must surely be a step in this direction.

J. G. Fitzgerald[2] is another who recognizes the importance of a study of the environment. Addressing the Thirty-Fourth Annual Congress on Medical Education, February 14, 1938, he said: "Let there be no misunderstanding. Man's environment is of profound importance."

According to Dr. James Houlose,[3] "Life expresses itself in conduct or behavior; hence, if one is to understand human behavior either in its normal or its abnormal phases, one must study in detail both the individual and his environment. Furthermore, it must be realized that man is more than a biologic organism; he is also a social being, growing and adapting himself to a specific environment. Hence fully to understand human behavior, one must study the individual as a psychophysical organism that is attempting to adjust to a specific environment."

Dr. Wallace Marshall believes that we, as practicing physicians, must be fully aware of the presence of environmental tension in our patients; if it is present, our common sense will guide us to an adequate solution. We must protect our patients from the effects of force and irritation, whether these be in the form of an "acute abdomen" or domestic difficulty. Preventive medicine has a most important place in such matters.

It remains for Robert Britt[4] to sum up the ideas of the others and to point to specific instances of how the patient's environment may actually produce definite physical and mental symptoms. He says: "To do justice to the patient, the physician must take into consideration not only the laws of laboratory procedure but also the laws which regulate the reaction of man to his environment even though these laws cannot be formulated in mathematical or precise physical terms. In treating the patient as a subject with a disease and to look upon the human characteristics of the patient as irrelevant and to ignore his life situations may cause one to overlook many factors essential for an understanding of the symptoms of the disease. The emotional and instinctive life of the patient, the family pattern, economic and social situation, may be essential factors in understanding and treating patients when symptoms may not at first suggest a complex origin. A consideration of these factors makes intelligible such symptoms as persistent headache, insomnia, gastrointestinal disturbance, fainting, palpitation, variations in blood pressure, the frequency of attacks of vertigo, refractive disorders, pelvic and abdominal complaints.

That some of our larger medical schools are now taking into account the importance of the patient's environment is seen in the fact that Yale, Vanderbilt, Syracuse, Johns Hopkins, and possibly other university medical schools are including environmental case study in their courses of instruction. This study, according to Leathers, directs the interest of the student to individual cases rather than to groups of people.

Leathers[5] describes the study as follows: "A particular clinical and public health problem is undertaken in the study of the patient in reaction to his family, his home, his occupation, his social-economic status, and to the official and unofficial health and welfare agencies whose aid may be invoked in the solution of the treatment involved. These cases are selected cooperatively by the clinical and public health departments and the social service division of the hospital. A report is finally made by the student to the class, and representatives of the agencies concerned are invited to attend. This method of teaching affords an unusual opportunity for the student to obtain some idea of the background of disease, its significance in the economy of life and the factors that should be considered in attaining the best results in the treatment of both the patient and the disease."

I believe a study of the environment of the patient by the family doctor would not only assist him in diagnosis, but would also restore him in a measure to his rightful position which has, of late, been subject to attack by various cultists and other types of "healers."

Social workers are today in a position to furnish physicians with information as to the environments of patients who are seen in clinics or dispensaries, but for other patients who visit the physician in his office there is no such outside agency that can assist. The information must be obtained from the patient himself, and this is a matter which will often tax the physician's ingenuity and tact to the utmost, since too many direct questions will sometimes antagonize the patient and make him evasive in his answers.

It may be argued that there is no need for this sort of investigation in the upper classes, but I believe statistics will substantiate the claim that many of the divorces, suicides, child truancies, etc., are in the upper classes. Divorce is often caused by unrecognized, physical ills. If the doctor were consulted as often as the lawyer, the break up of many marriages might be prevented.

Mothers and fathers of problem children are wondering today whether the reason for their children's behavior lies in themselves, or in the discipline or lack of it in the home. Often, of course, the cause is a physical one, which is not recognized by them, or if recognized, is neglected. Such physical causes of abnormal conduct are often easier to correct than the environmental ones, the reason being that the doctor, especially in a large community, who sees the child only in his office, has no knowledge of home conditions.

Recently, much attention has been paid to the health of executives of corporations. The attempt to build up and maintain health in persons of this class calls for an investigation of home conditions no less than the case of an underprivileged worker, yet the investigation is seldom made.

For many years it has been recommended that persons over 40 should have periodic physical examinations, and that children should have physical check-ups in their schools. Although this may be done, the examinations, in *both* cases, fail to include an investigation of home conditions.

The value of a comprehensive examination which includes a study of environment should be self-evident to any physician who has had patients come to him who have previously gone from doctor to doctor, and have either been operated upon needlessly, or have been told to go home and forget their troubles. Many times the troubles will be found at home.

A few examples will show the extent to which environmental conditions may affect health.

Dr. I. S. Cutter[6] relates the case of a high school freshman girl, who complained of fatigue, loss of appetite, and nervousness. She had entered high school with excellent grammar school grades. Her course in high school comprised five subjects. She was so conscientious about her work that only one of her lessons could be prepared during the day. This meant carrying books weighing ten to twelve pounds back and forth to school each day and the preparation of an average of four assignments at night. It was too much for her. Sleep was cut short and a deep-seated type of nervousness appeared in the offing. The only remedy was a reduction in her program which was followed by the alleviation of all symptoms.

If the doctor had not been alert to environmental influence, much time would have been lost in treating the case and permanent damage might have been done.

Mrs. N. appeared at a clinic in 1936 suffering from pain, nausea, and indigestion. After an x-ray examination, a diagnosis of duodenal ulcer was made and treatment was instituted. A

good result was obtained in a few weeks and the patient disappeared for a time. On her return, she stated that she had been entirely well for several months, but recently had noticed a return of her old symptoms. Treatment was again given for the ulcer and again a good recovery was made, only to return in a few months. At this time, an investigation was made of the patient's home conditions and it was found that a recurrence of the ulcer activity coincided with an alcoholic debauch of her husband.

An executive was examined in my office for insurance, at which time an elevated blood pressure was found. Several repeated observations confirmed hypertension but on his return a year later, the blood pressure was normal. He then told me that during the first examination he was obliged to be up at night because of a new baby. This loss of sleep together with his office duties evidently caused some elevation in blood pressure.

Very often a reduction in blood pressure is caused by adjusting some environmental influence and no medicine is needed.

I do not mean to imply in the foregoing discussion that the family doctor needs to be an expert psychologist. I believe he is sufficiently well acquainted with psychological problems in a general way to determine whether any are present in a given case.

It is difficult, however, at times to obtain an accurate account of environmental conditions from the patient due to his reluctance to confide in the doctor. If the latter can gain the confidence of the patient and then get over to him in a friendly way the idea that there is certain information he needs before he can have a proper understanding of the case and make a correct diagnosis, he will experience less difficulty than if he fails to make this explanation. Of course, if he can obtain the information he desires without the patient's feeling that his private affairs and home life are being pried into, so much the better.

A physical examination and requisite laboratory tests should, of course, be made before any investigation of the environment is undertaken.

Following is a suggested outline, or check list, which may serve as a guide to the physician in his office when undertaking to make a study of the patient's environment:

HYGIENE.

1. Ventilation
2. Sleeping conditions
3. Lighting facilities

DIET.

1. Regularity of meals
2. Preparation of food
3. Are meals well balanced?
4. Food eaten by different members of the family

SOCIAL CONDITIONS.

1. Family background including temperamental traits — epilepsy, migraine, alcoholism, psychosis, invalidism
2. Early personal development — walking, talking, dentition, feeding, tantrums, bed wetting and night terrors
3. Attitude toward family — attachment to father or mother, antagonism, only child
4. School adjustments — truancy, failures, stealing, etc.
5. Sexual information and source
6. Mood reactions
   - Optimistic
   - Pessimistic
   - Easily frightened
   - Feelings easily hurt
   - Temper
7. Social Adaptability
   - Timid
   - Shy
   - Impulsive
   - Good loser
   - Shirk responsibility
8. Neurotic Tendencies
   - Physical comfort
   - Blushing
   - Food
   - Alcohol
   - Drugs
   - Superstitions
   - Anxieties
9. Family Unrest
   - Indifference
   - Incompetence

Physical defects
Mental defects
Quarrelsome type
Too much discipline

Recently one hundred and seventy-four case records from the dispensary and medical wards of a hospital have been reported[7] with special reference to the bearing of the social studies carried out. In 71 per cent. of the patients studied, some adverse social condition was definitely related to the illness in a causal relationship and in 26 per cent., the social difficulty constituted the main etiological factor.

Miss Thornton of the Presbyterian Hospital in New York City has divided social factors into two classes — those of subsistence and those of

satisfaction. The former includes loss of work, insufficient clothes, food, etc.; and the latter, personal maladjustments which cause emotional disturbances sufficiently severe to bring about or aggravate illness. 39 per cent. of Miss Thornton's cases had disturbances of subsistence and satisfaction, 30 per cent. of subsistence alone, and 11 per cent. of satisfaction alone. These figures are not applicable to illness in general. They are based on a selected group of underprivileged individuals.

Doubtless the majority of doctors will claim that they are too busy to undertake the type of investigation here suggested, but if the doctor is conscientious and wants results he will attempt it. Of course, the better cooperation he receives, the more satisfactory the results will be.

It is obvious that he will be unable to alter some influences but this does not lessen his responsibility to discover them, if possible. Such influences should be pointed out and remedied, whenever practical.

I realize that certain medicines are specific for certain diseases and that there is no need for investigation of the environment in many cases. In others, however, it may be the only key to the solution of the patient's difficulties which the doctor needs.

In conclusion, I wish to emphasize that, in giving medical service, we must consider all the influences surrounding the patient. I know this is well known, but how often neglected. We, as physicians, study the patient's disease with great care but, as Meyer says, neglect his illness.

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Said one eye to the other: "There's something between us that smells."

GOOD REASON

A party of tourists came upon an Indian brave riding a pony. A heavily burdened squaw walked beside him.

"Why doesn't the squaw ride?" asked the tourist.

"Ugh," grunted the Indian, "she got no pony."

UNUSUAL AUTOPSY FINDINGS IN A CASE OF BRUCELLOSIS TREATED WITH SULFANILAMIDE

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Brucellosis (Malta fever, undulant fever) is endemic in certain areas of the United States; however, it is relatively uncommon in this locality. The usual mortality rate of this disease is reported as 2 per cent. During the past eight years there have been about 640,000 admissions to the Cook County Hospital and only 29 cases of brucellosis have been reported. During this period 13,508 autopsies have been performed, two being cases of brucellosis.

The first case is of the usual type with septicemia and no apparent localizations of the brucella organism. The agglutination test for brucella melitensis was 1-1,280. The patient contracted bronchopneumonia and died thirteen days after admission to the hospital. Blood culture showed streptococcus viridans four days before death. Whether the bronchopneumonia was due to this organism or the brucella organism was not determined.

The second case died in spite of treatment with sulfanilamide and at autopsy, presented unusual findings which are presented and discussed in this paper.

CLINICAL HISTORY: G. P., white male, aged 30, was admitted to the Cook County Hospital, Chicago, on June 30, 1938. The patient, a clerk, had had lobar pneumonia in 1922 and a duodenal ulcer in 1935. The latter was complicated by severe hemorrhage. For the past three years the patient had been well. No history of exposure to brucellosis could be obtained. On June 28, 1938, he developed severe abdominal pain which was localized in the right lower quadrant. The pain was relieved by an ice bag within several hours. He vomited several times after the onset of this pain. On June 29, he experienced several chills, lasting about an hour each. The fever increased after each chill. Drenching sweats followed the chills. That evening he experienced shortness of breath and a feeling of marked fatigue. There was no cough, hemoptysis or pain in the chest. His appetite had been poor since the onset of his illness. There was no disturbance of the bowls.

PHYSICAL EXAMINATION: The patient was a well-developed, well-nourished male patient who appeared toxic. Beads of persipiration stood on his

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forehead. Cyanosis of the head, neck and upper extremities was marked. His respirations were 28, but not labored. The pupils were normal. Physical examination of head and neck were normal. Over the right lower lobe the percussion note altered and the breath sounds suppressed. There was no change in fremitus. The examination over the rest of the lung fields was normal. The cardiac area was normal in all respects and the blood pressure was 100/70. There was slight muscle defense noted over the lower abdomen, especially on the right side. The liver and spleen were not palpated. Throughout the illness the spleen could not be palpated but the splenic area was thought to be enlarged to percussion. Physical examination otherwise was noncontributory.

LABORATORY FINDINGS: The blood count at entrance showed a hemoglobin of 88 per cent, a red cell count of 4,620,000. Throughout the course of his illness there was a gradual decrease in the hemoglobin and red cell count. The lowest determination of the red cells was 2,840,000. By blood transfusions his count was maintained at approximately 3,500,000 with hemoglobin of 60-70 per cent. The white cell count on entrance was 5,900. Except for two days during the development of the thrombophlebitis and pulmonary infarct, the white blood count was never over 9,700. Differential count always showed 80 per cent polymorphonuclear cells with 1 to 4 eosinophiles. The urine was essentially normal throughout the course of his illness. An occasional trace of albumin was the only abnormality noted. All stool examinations and cultures were negative. An anterior-posterior x-ray of the chest, made on entrance, revealed bilateral increase in hilar markings with considerable thickening of right interlobar pleura and calcification of the hilar lymph nodes. There was a slight infiltration into the lung parenchyma in the right base. Both Wasserman and Kahn tests were negative. The blood Widal test was negative. The agglutination tests for b. typhosis, "H" and "O" antigens, and for b. paratyphosis, "A" and "B" antigens were negative. On July 8 the agglutination test for brucella antigen was negative. On July 14 the agglutination test for br. abortus and br. porcine was positive, 1-40, while the agglutination for br. melitensis was positive, 1-2,560. On August 3 the same tests were repeated with 1-2,000 for br. melitensis and no agglutination for br. abortus and br. porcine. The intradermal skin test for brucellosis was not made. Facilities for determining the opsonophagocytic index were not available. Blood cultures were repeatedly negative, although special technique for brucella organisms was not used.

CLINICAL COURSE: The fever ranged from 99° F. to 105° F. and was of septic type rather than an undulating type of curve. The pulse rate varied from 85 to 160 and, until the last few days of his illness, it was usually 100 or below. The respiratory rate was elevated to 28 on entrance but within 24 hours was 20-24 and remained so until the development of the pulmonary infarct, when it was elevated proportionately. Sweating was a notable feature. It was profuse, necessitating three to four complete changes of bed linen daily. As this continued day after day, weakness and weight loss (187 to 151 lbs. in 44 days) became increasingly evident, Malar flush and herpes simplex of the lips developed (on July 3, lasting for about 7 days). Migratory pains of the shoulder, elbow, knee and ankle joints developed after the second week of the illness. Frequent complaints of chest pain were noted. They were never severe but of such character as to be annoying to the patient. On July 24 patient complained of sudden pain in the left chest, accompanied with weakness, cough and hemoptysis. On August 3 tenderness and voluntary rigidity of the epigastrium developed. Nausea was present. Vomiting occurred several times over the next three days and diarrhea was present throughout this period. There was no appreciable response to therapy. Anorexia became more marked. Life was sustained by intravenous feedings and blood transfusions. Stupor developed August 11, and patient died August 12.

TREATMENT: Four blood transfusions of citrated (500 cc. each) were given during the course of the illness. Intravenous saline and dextrose solutions were given on eight occasions. One typhoid inoculation (25,000,000 organisms) was given intravenously. A repeated injection was not attempted due to severe reaction encountered after the first dose. Sulfanilamide was started July 18. A total of 480 grains was given by mouth and intravenously during the next two weeks. Cyanosis developed three days after the drug was started and for this reason it was discountinued. (At that time cyanosis was believed to be a contraindication for continuing the drug.) Three days later, however, it was administered again until marked cyanosis developed. Since no favorable reaction was noted, the drug was discontinued.

SUMMARY OF NECROPSY PERFORMED FOUR HOURS AFTER DEATH — The body is that of a well-developed, fairly well-nournished, white male. The left thigh is moderately enlarged and edematous, the fingernails are slightly cyanotic, the pupils are round and equal and the teeth are in a bad state of repair. The abdominal cavity: The peritoneum is free and contains a few cc. of yellowish, translucent fluid, the liver is 10 cm. below the xiphoid and 5 cm. below the right costal margin, and the spleen is at the level of the left costal margin in the mid-axillary line. The right diaphragm is at the 4th rib, the left at the 5th rib. The left pleural cavity contains 400 cc. of dark, reddish, turbid fluid and the right contains focal fibrous adhesions over the anterior aspect of the upper and middle pulmonary lobes. The pericardial sac is free and the heart weighs 275 gms. The right ventricle is moderately dilated and the wall is 4 mm. thick. The left ventricle is slightly dilated and the wall measures 17 mm. in thickness. The myocardium is pale brownish red and friable. The first measurement of the aorta is 73 mm. and the intima contains fatty hyaline placques 1 plus. The pulmonary artery measures 75 mm. and is smooth. The coronary arteries are unchanged.

The right lung is crepitant throughout and there are focal fibrous adhesions over the anterior aspect of the upper and middle lobes. There is a sub-pleural calcified Ghon tubercle 15 mm. in diameter in the upper lobe. The bronchi are normal. The upper lobe of the left lung is slightly emphysematous, while the lower lobe is partly atelectatic. In the base of the left lower lobe there is a firm dark red, wedge-shaped area of infarction, 60 x 30 mm. A medium sized branch of the pulmonary artery to this area is occluded by a recent thrombus. The mucous membrane of the stomach is thin and pale yellowish-green in color. There is a defect in the mucosa in the first part of the duodenum, 1 cm. in diameter and 2 mm. in depth, the edges are slightly raised and indurated and the floor of the ulcer is greenish-brown. The spleen weighs 710 gms., is soft and the capsule is thin. On sectioning, it is dark purple-red, very moist and the markings are indistinct. A few small firm wedge-shaped infarcts are present. The liver weighs 2,530 gms. The consistency is firm and cut sections are pale brown color with light tan acinar centers. The gallbladder contains greenish brown bile and the mucosa is thin. The pancreas is firm, pinkish-tan and uniformly lobulated. The splenic vein contains a small firmly organized thrombus that partially occludes it as it passes the head of the pancreas. This thrombus extends into the pancreatico-duodenal vein where it is undergoing necrosis and suppuration and forming a small extra pancreatic abscess. The mucous membrane of the small intestine is pale brown and covered with grayish-brown mucinous material. There are a few periappendiceal adhesions and the mucous membrane of the appendix contains small areas of ulceration. The large intestine is moderately dilated, edematous and slightly injected. The thyroid, adrenals, kidneys, rectum and G. U. system are essentially unchanged. There is a firmly adherent, partially organized blood clot which extends from the left iliac and femoral veins into the vena cava.

MICROSCOPIC ANATOMY

Spleen: The lymphatic tissue is slightly reduced. The lymph follicles are small and irregular in shape, the pulp is congested with red blood cells. The endothelial cells are increased and rather large. Scattered through the pulp are giant cells, some with numerous small nuclei, others with a few large hypochromatic nuclei. Some of the giant cells show free protoplasm in the center with several nuclei arranged about their periphery. Most of these giant cells are surrounded by small areas of lymphocytes.

Kidney: Bowman's space for the most part is free and most of the glomeruli have congested capillaries. Some of the glomeruli are lobulated and are partially adherent to the capsule. The tubular epithelium is swollen and granular and the lumen of the tubules contains precipitated protein. In several places there are hyalinized glomeruli surrounded by round cells and the corresponding tubules are atrophied. There is a moderate infiltration of lymphocytes and some plasma cells throughout.

Liver: The sinusoids are slightly dilated about the central veins and contain red blood cells and several polymorphonuclear leucocytes and lymphocytes. The liver cells, for the most part, are swollen and granular and those near the central vein contain greenish, granular bile pigment. The Kuppfer cells are moderately increased in size and there is a moderate round cell infiltration in the periportal fields. A moderate amount of fat is seen in the liver cells, especially in the region of the central vein.

Lungs: Most of the alveoli are collapsed but occasionally a few are open and contain a pink staining homogeneous material. The bronchi and bronchioles are collapsed and frequently contain polymorphonuclear leucocytes, large monouclears and fibrin in their lumina. The epithelium occasionally shows metaplasia to squamous cell type. The connective tissue surrounding the bronchi is edematous and slightly thickened. In one area the entire architecture of the lung is destroyed. Around this area there is a diffuse congestion of the capillaries with red blood cells and infiltration with polymorphonuclear leucocytes. Near this area a large vessel is occluded by a laminated, necrotic mass composed of red blood cells, white blood cells and fibrin. This clot does not appear to be attached to the vessel wall.

BACTERIOLOGY: Smear from pancreatico-duodenal vein reveals many small gram-negative bacilli morphologically the brucella group, pus cells and occasional gram-positive cocci in chains. Culture of stool shows no evidence of pathogenic organisms. Culture of spleen shows b. coli, staphylococcus aureus and streptococcus viridans (probably contaminants). Blood agglutination for brucella melitensis was 1-5,120 dilution.

ANATOMICAL DIAGNOSIS: Undulant fever. Thrombophlebitis of the left femoral vein with extension into the left iliac vein and inferior vena cava. Large hemorrhagic infarct in the left lower pulmonary lobe with hemothorax. Organizing thrombus in the central part of the splenic vein, extending into the adjoining pancreatico-duodenal vein with secondary suppuration and extra-pancreatic abscess. Marked infectious hyperplasia of the spleen. Parenchymatous degeneration of heart, liver and kidneys. Fatty changes in the liver. Chronic ulcer in the duodenum. Focal fibrous adhesions in the right pleural cavity. Slight eccentric hypertrophy of the heart and moderate dilatation of the right ventricle. Calcified Ghon tubercle in the right upper pulmonary lobe. Compression atelectasis of the lower lobe of the left lung.

DISCUSSION

Certain phenomena in this case are worthy of mention and review. Thrombophlebitis of the splenic vein with partial occlusion of the vein and thrombosis of the pancreatico-duodenal vein occurring with brucella infection has not been reported as far as we are able to find. The

tissues in this area underwent necrosis and suppuration forming small extra pancreatic abscesses. It is believed that this process started eight days before death, when nausea, vomiting, abdominal pain, tenderness and voluntary rigidity of the right upper quadrant were noted. An infection of the gallbladder was considered clinically at this time. However, a definite diagnosis was not made. In retrospect there were no signs that could be looked upon as pathognomonic for the pathology found. Mettier et al[1] reported a patient who recovered from undulant fever after removal of the gallbladder and feels that perhaps it may act as a reservoir for the brucella organism similar to the manner in which it will harbor the typhoid organism. There are few reports of localized lesions that have undergone necrosis and suppuration. De La Chappelle[2] reports a case of vegetative endocarditis and abscess formation, Luciani[3] one with large abscess formation following septicemia, and Gottlieb[4] reports a case with subdiaphragmatic and liver abscess. Brucella melitensis abscesses resemble those in tuberculosis in chronicity but are usually accompanied by pain. The absence of ascites, and hemorrhages from the stomach and intestine is probably due to the lack of complete occlusion of the splenic vein by the thrombophlebitis.

Thrombophlebitis and pulmonary embolism have been rare complications of brucellosis. The incidence of thrombophlebitis has been reported as low as 1-300, and as frequent as 1-80.[10] The left femoral vein is most commonly involved and when this complication occurs it usually manifests itself 10 to 30 days after the onset of the illness. Brucella melitensis is the most frequent inciting organism, although a few have been reported following brucella abortus. No cases caused by the brucella porcinus have been disclosed. Recovery is the rule. Mollard and Reinaud[5] reported an interesting case in which thrombophlebitis of the right leg occurred on the fifteenth day of the disease. Pulmonary embolism occurred almost simultaneously and intestinal hemorrhage followed shortly thereafter. The patient recovered completely. Babbasch[6] described a case of thrombophlebitis of the femoral vein which existed for a month. Beggi[7] also discussed a case of thrombophlebitis that occurred in the femoral vein of a young woman at the onset of the disease. Blood culture showed the brucella melitensis. The patient recovered. Ruggiero and Spezzafumo[8] reported the only case of bilateral thrombophlebitis of the femoral veins. The one followed the other in two weeks. Recovery was rapid and no sequallae remained. Broussard of Castellane,[8] (quoted by Ruggiero and Spezzafumo) discussed a case (unpublished) of thrombophlebitis, pulmonary infarct and death. Wohlwill[9] described careful anatomical findings in a woman aged 67 who died of brucella abortus infection which was complicated by pulmonary embolism. Escarras[10] discussed a typical case with positive agglutination to Brucella melitensis in which thrombophlebitis of the femoral vein developed which was followed by a pulmonary embolism to the left lung. This patient recovered in two weeks, six weeks after the onset of the disease. Rizzo and Pierini[11] reported a single incident of thrombosis of the left femoral vein which occurred twenty days after the onset of the illness. The agglutination to brucella melitensis was 1-5,000. Recovery was complete.

Rober and Audier[10] reviewed the literature and reported two cases of thrombophlebitis in brucellosis. In both cases the complications occurred several months after the onset of the disease and although phlegmasia alba dolens developed in one instance, both patients recovered from the original disease. The authors stated that the pain of thrombophlebitis in brucellosis is minimal but that edema of the dependent extremities is the prominent sign. The course of this complication is usually benign and, if pulmonary infarcts were present, they were commonly small and therefore not grave.

Bagley, Mueller and Wells[12] reported a case of a man aged 46 years who developed brucella abortus infection. Thrombophlebitis of the left femoral vein developed on the 25th day of the disease. Shortly thereafter pulmonary embolism occurred followed by death in a few hours. At the autopsy an eight centimeter clot plugged the left pulmonary artery and fragments of a clot were present in the right pulmonary artery. In the left femoral vein remains of a thrombus were found but the internal surface of the vein was free of inflammatory changes.

The intermittent or undulating type of fever for which the disease is named is the usual type

of temperature curve, togther with a leukopenia and a relative lymphocytosis. However, in our case a septic type of temperature curve and a leukopenia with a relative polymorphonuclear leucocytosis were present, similar to that reported by Gottlieb.[4]

Many therapeutic agents have been used successfully in the past in treatment of brucellosis, thereby lending some question to the value of any treatment that has been used, even though good results have been reported. Spontaneous recovery is well known. Typhoid injections,[13], [14], [15] hyperpyrexia, fouadin (an antimony compound),[18] arsphenamine,[19] acriflavine,[20] short wave diathermy,[21] x-ray therapy,[22] brucellin (specific nucleoprotein),[23] melitine (sera vaccine),[24],[25] have all had favorable reports in terminating the infection. Over a period of years the estimated average duration of brucellosis is 11.3 weeks, with extremes being ten days to six months and recurrence as long as ten or more years. Angle[20] in commenting on vaccines stated "I have had numerous letters stating the vaccine yielded poor results, and that as soon as its administration was stopped the patient got well."

Carpenter et al[27] came to the conclusion in 1936 that a successful method for the treatment of brucellosis still awaits development. DeBono[28] feels that treatment with sera, vaccines, protein shock, chemotherapy and many less orthodox procedures has been disappointing, and that this disease tends to run its course in spite of treatment.

Sulfanilamide ([29] to [37] inclusive) and related compounds have been recently suggested as a successful therapeutic agent in the treatment of undulant fever. Dosages varying from 90 to 1,230 grains have been given. Menefee and Poston[38] conducted studies on sulfanilamide in vivo and in vitro. Guinea pigs were inoculated with all three varieties of the brucella organism. Their experimental observations suggest that the bacteriostatic action of the drug allows the normal defense mechanism of the body to cope adequately with the invading bacteria.

On the other hand, Bynum[39] reports six cases, (two acute, one subacute and three chronic) of brucellosis due to the brucella abortus which in no way reacted to sulfanilamide in adequate doses. Our own case, tending to show a steady downward course in spite of sulfanilamide therapy, would uphold Bynum's contention, at least to the degree that this drug is not specific in this disease.

This is the first autopsy report of a case of brucellosis which has been treated with sulfanilamide.

SUMMARY

1. A fatal case of brucellosis is presented with autopsy findings.

2. Thrombosis of the left femoral vein, splenic vein and pancreatico-duodenal vein was observed. Pulmonary embolism was the immediate cause of death.

3. 480 grains of sulfanilamide were given but no therapeutic response was noted.

4. The brucella organism was found at autopsy in spite of therapy.

5. A relative polymorphonuclear leucocytosis was present instead of the usual relative lymphocytosis throughout this illness.

6. The fever may not follow the undulating type of curve for which the disease is named.

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CEREBELLAR SUBDURAL HEMATOMA

Coblentz presents the history of an infant of 2 weeks who recovered after an operation for an encysted subdural hematoma. The author believes that his is the first case to be recognized during life and cured by operation. The hematoma was located over the right cerebellar hemisphere. Secondary hydrocephalus also was present. Although there was no definite history of trauma, ecchymosis of the upper lids and a moderate occipital caput led the author to suspect slight trauma as the most likely etiologic factor. Prompt disappearance of blood in the lumbar subarachnoid fluid after daily lumbar punctures and continued increased intracranial pressure indicated a coexisting lesion. Subdural hematoma over the cerebral hemispheres was ruled out by subdural taps. Ventriculography definitely located the lesion in the posterior fossa. Evacuation of the clot through a small trephine opening without drainage effected a cure. At the time of writing, the baby is 3 months old and has made a complete recovery.

VANISHING SMALLPOX

Smallpox has practically disappeared in the United States where laws requiring vaccination for school attendance have been in force for a number of years, according to information just published by the United States Public Health Service.

In the 20-year period from 1900 to 1919 slightly more than three-quarters of a million cases of smallpox were reported in the United States, and in the two succeeding decades the number reported totaled nearly 700,000 cases, 75 percent of which occurred in the decade from 1920 to 1929. During the period from 1900 to 1919, inclusive, 11,435 deaths from this disease were recorded, and from 1920 to 1939 the number fell to 5,337, 90 percent of which occurred from 1920 to 1929.

During the past 40 years there has been a progressive change in the type of smallpox seen in the United States, a change from a large proportion of severe cases with a relatively large number of deaths to a greater percentage of the mild type with very few deaths.

"This change in type of smallpox is one of the reasons for the marked decrease in deaths from the disease observed in recent years," Dr. Dauer stated in his report on the decline of smallpox.

A large proportion of the cases reported in the past decade have occurred in the north central and northwestern sections of the country while in the eastern part of the United States the disease has practically vanished.

Coming Meetings

February — Fulton County — Dr. Robert E. Lee — "Ambulatory Varicosities and Associated Pathology."

February 11 — Winnebago County — University Club, Rockford — 6:30 P. M. — Dr. Herbert E. Schmitz — "Diagnosis & Treatment of Cancer of the Uterus."

February 11 — Effingham County — Benwood Hotel, Effingham — 6:30 P. M. — Dr. Maurice H. Wald — "Hypertension and Its Treatment."

February 11 — Kankakee County — Hotel Kankakee, Kankakee — 12:00 Noon — Dr. Robert E. Black — "Heart Disease in Children."

February 14 — Jersey-Greene Counties — Colonial Hotel, Jerseyville — 6:30 P. M. — Dr. Cecil M. Jack — "Emergencies and Acute Heart Disease."

February 14 — Will-Grundy County — Louis Joliet Hotel, Joliet — 12:00 Noon — Dr. Elven J. Berkheiser — "Orthopedics."

February 16 — National Conference on Medical Service — Palmer House — Dr. Robert S. Berghoff — "The Illinois Program in Post Graduate Education."

February 18 — Knox County — Galesburg Club, Galesburg — 6:30 P. M. — Dr. James H. Hutton — "Recent Progress in Endocrinology."

February 18 — Rock Island County — St. Anthony's Hospital, Rock Island — 8:00 P. M. — Dr. H. Close Hesseltine — "The Place of the New Chemotherapeutic Drugs Before, During and After Gestation."

February 20 — Henry County — Parkside Hotel, Kewanee — 6:30 P. M. — Dr. D. E. Markson — "Diagnosis and Treatment of Arthritis." Dr. Clifford J. Barboka — "Medical Management of Gall Bladder Disease."

February 20 — Stephenson County

February 20 — Lee County — Hotel Nachusa, Dixon — 6:30 P. M.

February 20 — LaPorte County Society — LaPorte, Indiana — Dr. Robert S. Berghoff — "Coronary Disease."

February 21 — Will-Grundy County — Louis Joliet Hotel, Joliet — 12:00 Noon — Dr. Mortimer Diamond — "The Practical Significance of Gross Bleeding."

February 27 — LaSalle County — Starved Rock Lodge — 6:30 P. M. — Dr. James J. Callahan — "Fractures." Dr. George F. O'Brien — "Pneumonia."

February 27 — Edgar County — Paris Hospital, Paris, Illinois — 7:00 P. M. — Dr. Bert I. Beverly — "Behavior Problems in the Normal Child."

March 4 — Williamson County — Herrin Hotel, Herrin, Illinois — 8:00 P. M. — Dr. Sidney Levinson — "Poliomyelitis."

March 7 — Will-Grundy County — Louis Joliet Hotel, Joliet, Illinois — 12:00 — Dr. Robert E. Cummings — "The Acute Abdomen in Children."

March 7 — Madison County Medical Society — Granite City, Illinois — 2 P. M. — Dr. Edward Bigg — "Use of Sulfanilamide and Allied Compounds In Infections."

March 11 — Effingham County — Benwood Hotel, Effingham — 6:30 P. M. — Dr. Harlan English — "What Can Modern Urology Offer?"

March 12 — Coles-Cumberland County — Mattoon, Illinois — Dr. Wm. J. Morginson — "Dermatology." Dr. James Graham — "Varicose Veins and Ulcers."

Personals

Mr. James C. Leary, who has been specializing in science writing on the staff of the Chicago *Daily News* for the past several years, has been named science editor of that paper.

Dr. Oscar F. Schultz, Evanston, was elected president of the Illinois Society of Pathologists at its annual meeting, December 7; Dr. Israel Davidsohn, Chicago, is the secretary.

Dr. William Randolph Lovelace II, Rochester, Minn., discussed "The Use of Oxygen and Helium-Oxygen in Medicine and Surgery" before the Sangamon County Medical Society, Springfield, January 2.

Dr. James E. Graham, Springfield, discussed "Varicose Veins" before the Madison County Medical Society in Edwardsville, January 3.

Dr. Ralph C. Brown, Chicago, discussed "Chronic Ulcerative Colitis" before the Sangamon County Medical Society in Springfield, December 5.

The Henry County Medical Society was addressed in Kewanee recently by Drs. Leo K. Campbell and Channing W. Barrett, Chicago, on "Benefits and Dangers of Reducing" and "Preservation and Restoration of the Pelvic Floor" respectively.

Dr. Stuart W. Harrington, Rochester, Minn., will deliver the annual Mayo Lecture in the library of Northwestern University Medical School, February 10. His subject will be "Diaphragmatic Hernia." This is considered the 1940 lecture.

Dr. Louis N. Katz will give a course in Electrocardiographic Interpretation at Michael Reese Hospital. The course consists of 12 weekly lectures starting February 19.

Dr. Harry A. Olin was invited to address the Will-Grundy County Medical Society on "Primary Carcinoma of the Lung," January 17.

Dr. Eugene Cary gave a paper on "Management of Prolonged Labor" before the Rock Island County Medical Society, January 21st.

Dr. H. Close Hesseltine was invited to address the Saline County Medical Society, January 24, on "Diagnostic Pitfalls of Pyuria and Fever in the Obstretrical Patient."

Dr. Frederick H. Falls was invited to give a talk on "Local Anesthesia in Obstetrics" before the Edgar County Medical Society on January

24th.

Dr. John R. Neal gave a paper on "Medical Legislation" before the Will-Grundy County Medical Society, January 24.

Dr. Grover C. Penberthy, Detroit, addressed the Jackson Park Branch of the Chicago Medical Society, December 19, on "Treatment of Burns."

Dr. Walter C. Alvarez, Rochester, Minn., discussed "Abdominal Pain" before the Calumet Branch, December 20.

Dr. George K. Fenn was invited to talk on "Peripheral Vascular Diseases, Diagnosis and Treatment" at the January 28th meeting of the Iroquois County Medical Society.

Dr. G. Henry Mundt was invited to give a talk on "Ophthalmology in General Practice" before the Macoupin County Medical Society on January 28.

Dr. William Harcourt Browne gave a paper on "Prolonged Labor" before the Staff of St. Francis Hospital, Peoria, on January 14.

Dr. Adrien Verbrugghen was invited to give a paper on "Neurology In General Practice" before the Bureau County Medical Society on January 14.

Dr. B. Barker Beeson gave a paper on "Treatment of Syphilis in the Adult" before the Lake County Medical Society on January 14.

Dr. Francis E. Senear addressed the Effingham County Medical Society on "Treatment of Common Skin Disorders," January 14.

Dr. Franklin J. Corper gave a paper on "Urinary Tract Infections and Nephritis" before the Alexander County Medical Society on January 14.

Dr. Charles Newberger was scheduled to talk on "Forceps Delivery" before the Kankakee County Medical Society on January 14.

Dr. Edward Lyman Cornell was invited to talk on "The Post Due Patient" before the DuPage County Medical Society on January 15.

Dr. Frederick W. Slobe was invited to address the Stephenson County Medical Society on "Low Back Injuries" January 16th.

Dr. Jerome R. Head gave a talk on "Lung Abscess" before the Vermilion County Medical Society at Danville on January 7.

Dr. John S. Coulter gave a paper on "Uses and Abuses of Physical Therapy" before the Will-Grundy County Medical Society at Joliet on January 10.

Dr. Harry B. Mock addressed Will-Grundy County Medical Society on "Skull Fractures" at Joliet, January 3.

Dr. Fred Meixner of Peoria spoke at a dinner meeting of Physicians of Schuyller and Cass Counties at Beardstown, Ill. Hospital Jan. 8 on the topic "Influenza and Respiration Infections" at the request of the Educational Committee, Illinois State Medical Society.

At the annual meeting of the Chicago Dermatological Society held January 15th the following officers were elected: President, Leonard F. Weber; Vice-President, Marcus R. Caro; Secretary-Treasurer, Michael H. Ebert.

At the annual banquet of the staff of the Edgewater Hospital, held at the Hotel Sovereign, Chicago, January 18, 1941, tribute was paid to Dr. Arthur E. Gammage upon the announcement of his retirement from active practice as of April 1, 1941, by appointment as Emeritus Consultant, Departments of Gynecology and Obstetrics. Dr. Gammage has been in active practice in Chicago for 35 years. He organized and has contributed largely to the success of the obstetrical department of the hospital ever since its organization. He moves to his country home at Rio, Illinois, Knox County, where his family now resides, and where he has spent considerable time and effort in the past five years developing his stock farm.

On January 3rd, Doctor Edmund Jacobson delivered an address before the Engineering Department of the General Electric Company entitled "Electrical Measurements of Nervous States and of Mental Operations in Man." A second address was given over the Radio Broadcasting Station of that corporation on the same day.

News Notes

—A division of social hygiene has been created in the state department of public health, the principal function of which will be to control the venereal diseases with especial emphasis on the eradication of syphilis. Dr. Herman M. Soloway, Chicago, has been made chief of the division.

—Edward A. Doisy, Ph.D., professor and director of the department of bio-chemistry, St. Louis University School of Medicine, St. Louis, re-

cently presented the first lecture under the Julius Stieglitz Memorial Lectureship at the University of Chicago. His subject was "Recent Developments in the Field of Vitamin K." The lectureship was established through joint effort of the Chicago section of the American Chemical Society and alumni of the department of chemistry of the University of Chicago.

—Dr. Dallas B. Phemister, professor of surgery and chairman of the department, University of Chicago School of Medicine, has been designated the first holder of the newly created Thomas D. Jones professorship. The new chair was recently established to honor the late Thomas Davies Jones, pioneer Chicago attorney and industrialist, who died in 1930. Mr. Jones had been a major benefactor of the University of Chicago, its medical school and the Frank Billings Medical Clinic. Born in Carbondale, Ill., in 1882, Dr. Phemister received his degree in medicine in 1904 from Rush Medical College. He has been a member of the staff of the University of Chicago since 1925 and is a past president of the American Surgical Association and of the Society of Clinical Surgery.

—The winter meeting of the Society of Illinois Bacteriologists held at the Board of Trade Building, Chicago, January 31. Dinner will be followed by a program with four speakers, as follows:

Mr. H. W. Cromwell, Abbott Laboratories, North Chicago, Experiences with Microbiologic Assay of Riboflavin (Vitamin G).

Dr. Carl A. Dragstedt, Northwestern University Medical School, Chicago, Some Recent Studies in Anaphylaxis.

John C. Garey, Ph. D., University of Illinois, Urbana, The Bacteriology of Brick Cheese.

Dr. Wayne W. Fox, Northwestern University, Evanston, Laboratory Aids in Diagnosis and Treatment of Pneumonia.

—The middle section meeting of the American Laryngological, Rhinological and Otological Society in a joint session with the Chicago Laryngological and Otological Society addressed at the Drake Hotel, January 27, by the following:

Dr. Harry C. Rosenberger, Cleveland, Herpetiform Inflammation of the Geniculate Ganglion with Facial Paralysis: A Subjective Experience.

Dr. Samuel Iglauer, Cincinatti, Use of Preserved Human Cartilage in Reconstructive Facial Surgery.

Melvin H. Knisely, Ph.D., Chicago, Dr. Warren K. Stratman-Thomas and Theodore S. Eliot, Ph.D., Memphis, Microscopic Observations of the Changes in the Blood and Circulation in Living Animals.

Dr. William E. Grove, Milwaukee, An Evaluation of Ménière's Syndrome.

Dr. James H. Maxwell, Ann Arbor, Mich., Some Experiences with Sinusitis in the Swimmer.

Dr. Harold I. Lillie, Rochester, Minn., Suppurative Otitis Media, Acute Suppurative Labyrinthitis and Meningitis in a Pregnant Woman Near Term: Cesarean Section, Labyrinthectomy and Recovery.

Stacy R. Guild, Ph.D., Baltimore, War Deafness and its Prevention.

Capt. Cole D. Pittman, Chanute Field, Ill., Relation of High Altitude Flying and Rapid Changes of Atmospheric Pressure to Otolaryngology and Its Effect on the Middle Ear and Accessory Sinuses in Military Aviators.

Dr. Paul H. Holinger, Chicago, Esophageal Perforations and Complications.

Dr. John Mackenzie Brown, Los Angeles, president, was introduced at this meeting.

—After serving three years beyond the retirement age, Dr. Joseph Brennemann retired from active service as Chief of Staff of the Children's Memorial Hospital on January 1st. He was nationally known as the author of numerous scientific articles in his chosen specialty and as author of the "Practice of Pediatrics." He is a past president of the American Pediatric Society. His seasoned and genial leadership influenced all those who had any contact with him during the twenty years he served the hospital.

Dr. C. Anderson Aldrich, a member of the staff for twenty years, succeeds him. Dr. Aldrich has been actively practising pediatrics on the North Shore for twenty-five years since his graduation from Northwestern University School of Medicine. He is the author of three books including "Babies Are Human Beings" which won the Parents Magazine award.

Deaths

JAY HARVEY BACON, Peoria, Ill.; Johns Hopkins University School of Medicine, Baltimore, 1940; a Fellow, A.M.A., member of the Clinical Orthopedic Society; fellow of the American College of Surgeons; served during the World War; on the staff of the Methodist Hospital; formerly on the staff of the Proctor Hospital; aged 63; died, November 18, of arteriosclerotic heart disease.

ALVIN GUSTAV BERGER, Chicago; Eclectic Medical College, Cincinnati, 1916; a Fellow, A.M.A., on the staff of the Grant Hospital; aged 48; died, November 9.

CLARK WILDER HAWLEY, Chicago; Rush Medical College, Chicago, 1885; a Fellow A.M.A., an Affiliate Fellow of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology; aged 85; died, November 1, in La Grange, Ill.

SIEGFRIED JACKSON, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; member of the Illinois State Medical Society; on the staff of the Columbus Hospital; aged 65; died, November 6.

FRANCIS KIRSCH, East St. Louis, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1890; aged 78; died, Nov. 5, 1940, in St. Mary's Hospital of cerebral hemorrhage.

KENNETH LINDSAY HOOD, Belvidere, Ill.; St. Louis University School of Medicine, 1926, a Fellow, A.M.A., president of the Boone County Medical Society; aged 45; died Nov. 25, 1940, of acute nephritis.

PAUL NICHOLAS LEECH, Ph.D., Director of the Division of Foods, Drugs and Physical Therapy in the headquarters office of the American Medical Association, died suddenly January 14 following a hemorrhage of the brain. He had suffered for some time with arterial hypertension. Dr. Leech was born in Oxford, Ohio, Aug. 12, 1889 and obtained his A.B. degree from Miami University, Oxford, Ohio, in 1910 and received the degree of master of science from the University of Chicago in 1911 and the Ph.D. in 1913. He also held the honorary degree of master of pharmacy from the Philadelphia College of Pharmacy. From 1911 to 1913 he was assistant in the Department of Chemistry at the University of Chicago, working with Prof. Julius Stieglitz. In 1913 he joined the staff of the American Medical Association as a chemist and in 1923 became director of the chemical laboratory, working under Prof. W. A. Puckner, who was the Secretary of the Council on Pharmacy and Chemistry. Following the death of Professor Puckner in 1932 Dr. Leech became Secretary of the Council on Pharmacy and Chemistry, and when the Board of Trustees created the Division of Foods, Drugs and Physical Therapy he was appointed director.

In 1918 Dr. Leech served as a lieutenant in the Sanitary Corps of the United States Army. He was a member of the American Chemical Society, a councilor from 1922 to 1936 and a director from 1928 to 1934. He also served as chairman of the Chicago section of the American Chemical Society in 1926. He was a member of the Chicago Chemists Club and trustee from 1925 to 1932. His contributions to medicine were recognized by associate fellowship in the American Medical Association and membership in the Institute of Medicine of Chicago. He was a member of Sigma Xi and an honorary member of Phi Beta Kappa. During his university career Dr. Leech contributed to research in the fields of formic acid, molecular rearrangements, medicinal chemistry and drug development. In his position as Secretary of the Council on Pharmacy and Chemistry, he served as an associate editor of many publications dealing with drugs, vitamins, glandular products and pharmacy. On several occasions he represented the American Medical Association in the United States Pharmacopeial Convention. For more than a quarter of a century Dr. Leech rendered devoted service to the physicians of this country and earned for himself a nationwide reputation for integrity, scientific judgment and the highest ideals in the advancement of pharmacy and chemistry.

HOMER BENJAMIN MILLHON, Owaneco, Ill.; Northwestern University Medical School, Chicago, 1903; a Fellow, A.M.A.; for many years on the staff of St. Vincent's Hospital, Taylorville; aged 70; died, Nov. 2, 1940.

WILLIAM JOHN MORRISON, Chicago; Chicago Medical School, 1916; aged 59; died, Nov. 13, 1940, of acute myocarditis.

ROY LA FAYETTE OWEN, Chicago; Rush Medical College, Chicago, 1901; aged 64; died, Nov. 25, 1940, in the Illinois Masonic Hospital of prostatic hypertrophy and pyelonephritis.

DEAN LOLLER RIDER, Riverside, Ill.; Rush Medical College, Chicago, 1923; a Fellow, A.M.A.; clinical assistant in surgery at his alma mater from 1923 to 1928 and clinical associate from 1928 to 1937; formerly on the staffs of the Provident and Cook County hospitals; aged 42; died, Nov. 15, 1940.

ADOLPH OTTO SISTLER, Hoopeston, Ill.; University of Louisville (Ky.) Medical Department, 1910; aged 57; died in November 1940 of myocarditis.

BEULAH MARIE SMITH-GRUHNER, Chicago; University of Illinois College of Medicine, Chicago, 1925; aged 53; died, Oct. 6, 1940, in the Albert Merritt Billings Hospital of a cerebrovascular accident.

KARL L. THORSGAARD, Chicago; Rush Medical College, Chicago, 1900; a Fellow, A.M.A.; served in various capacities on the staffs of the Augustana Hospital and the American Hospital; aged 65; died, Nov. 24, 1940, of coronary thrombosis.

IRA RAYMOND WILLITS, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; a Fellow, A.M.A.; aged 58; died, Dec. 3, 1940, in St. Mary's Hospital, Galesburg, Ill., of hypertensive heart disease and chronic nephritis.

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